# The RUBBER AGE

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## LATE NEWS of the Industry

### W. O. Rutherford Urges Tire Price Rise; Sees Benefit to Industry in Increase

SCORING present conditions in the industry, W. O. Rutherford, president of the Pennsylvania Rubber Company, Jeannette, Pa., declared that the situation would be immeasurably improved by a slight increase in tire prices in an open letter issued late last month. "When communities are called upon to suffer, the time for an accounting is at hand," he asserted.

"The income of the rubber industry on the sale of its product is approximately 75 per cent below pre-war levels," Mr. Rutherford stated. "This year there has been a shrinkage of nearly 30,000,000 tire units or 35 per cent below the volume prevailing during 1928 and 1929.

"Yet, notwithstanding this constantly shrinking market there has been an expansion of productive tire machine capacity through enlargements of old plants and the establishment of branch factories. This presents a problem that is difficult of solution.

"To meet emergencies which have arisen primarily as a consequence to this overproductive capacity, most drastic economies have been effected including wholesale layoffs, general reductions in salaries and wages, shortening of working hours, all of which have seriously reduced the income of rubber company employes.

"The passing of dividends has caused considerable hardship on stockholders in the denial of income return on their investment, to say nothing of the shocking shrinkage in the value of individual company stock shares which condition is attributable to lack of earning ability.

"In some instances severe losses from operations are being sustained monthly. It is bad enough to deny the stockholder his rights to dividends, but when communities are called upon to suffer, the time for an accounting is at hand.

"The public does not expect further reductions in tire prices. Probably no other commodity affords such value as tires at present prices with the lengthened mileage which is now built into them.

"We hear the oft-repeated statement that production costs are lowest in history. This is not altogether a complete story. The rubber industry today is the beneficiary from the distress of other industries including textile and rubber growing to say nothing of many allied industries dependent upon rubber manufacturing.

"In this group billions of dollars are invested and many hundreds of thousands employed. Rubber manufacturing is a pivotal industry and there is scarcely a chance for those allied with us to improve their status until American rubber manufacturers accept their responsibility and apply certain corrective measures.

"How in the world can we, with any degree of fairness, claim low costs when every tire produced and sold at ruinous prices spells privation and misery to those who supply us with our raw materials?

"A slight revision of tire prices to a higher level would

### Scanning the Headlines

*Report that Dutch Indies Governor General opposes restriction sends rubber down to 4.20 cents on New York Exchange . . . .* KELLY-SPRINGFIELD *shows profit in third quarter . . . . Rubber executives try to avert a tire price cut as W. O. Rutherford calls for increased schedules . . . .* DU PONT *chemists explain new synthetic rubber to Akron Rubber Group . . . . Rubber goods exports held up better during September . . . .* FIRESTONE *and Ford in new company to carry on Edison's rubber researches . . . . New York rubber men rally to aid unemployed . . . .* BOSTON WOVEN HOSE *reports smaller profits for fiscal year . . . . Navy commissions U. S. S. Akron, and Goodyear-Zeppelin starts work on new ship . . . .* FALLS *shows steady increases in tire sales . . . . Rubber latex thread is used in new type corset . . . .* INDIA *sales on increase . . . . New officers elected by Rubber Exchange and by Rubber Section, National Safety Council . . . . Cotton scores sharp rise in price.*

work wonders. It would enable individual rubber producing units as well as our allied industries to rejuvenate themselves. It would build a new spirit of confidence in hundreds of thousands of workers.

"Improved tire prices would obviate any further reductions in rubber manufacturers' personnel; salary and wage cutting would cease and a new spirit of confidence would be created throughout the industry which would be shared by leader and worker alike.

"The purchasing power of this industrial group would thereby be maintained and apprehension would be banished from the minds of the individuals affected. Its effects would be immediate and its benefits lasting.

"Trade outlets that have been buying sparingly due to fear of falling prices would realize that the bottom had been reached and the curve upward started. This would echo throughout the entire rubber industry and all branches would respond with more vigorous buying.

"Naturally this would bring about a more rapid consumption of surplus stocks of basic commodities and healthier conditions generally."

## Credit Executive Finds Rubber Trade At Strongest Since Depression Began

THE basic soundness of the domestic rubber manufacturing industry was emphasized by E. B. Moran, executive head of the Bradstreet Company, nationally known credit agency, in an interview late last month published in the Akron *Beacon Journal*. "My opinion is based on the fact that the rubber industry is in a stronger position today than it has been since the beginning of the present world-wide depression," he stated.

"It is true," Mr. Moran declared, "that 82 per cent of the total domestic rubber consumption goes into tires, but it is also a fact that the consumption of casings has jumped from 10.1 to every new car purchased in 1929 to 15.5 thus far this year. This increase is due to replacements of worn-out tires on the old car, and represents a greater proportion of retail sales, which are more profitable naturally than large contracts direct to automobile manufacturers.

"It is true," he continued, "that prices are far from being stable, stocks of crude rubber here or en route are sufficient to supply present needs for eleven months. But in spite of rapidly declining prices of crude rubber and curtailment of production, there have been remarkably few failures among companies handling rubber and rubber goods.

"Only eleven manufacturers with total liabilities of less than $2,000,000 have been reported by Bradstreet's as failing in the first nine months of 1931. This speaks well for an industry that has had to make such radical readjustments to meet changing conditions."

Mr. Moran asserted that he expects a pickup in business generally next spring and believes that better credit conditions which will undoubtedly prevail will assist in making prices more stable.

## Ford and Firestone in New Corporation To Continue Edison Rubber Experiments

FORMATION of the Edison Botanic Company to continue the experiments initiated by Thomas A. Edison to produce rubber from goldenrod or other domestic plants was announced October 30, together with the statement that Henry Ford and Harvey S. Firestone would participate equally in the enterprise with Mr. Edison's six children. Control of the new corporation is held one-third by the children, one-third by Mr. Ford and one-third by Mr. Firestone.

Mr. Ford was quoted on October 21, the day of Mr. Edison's funeral, as stating definitely that the work would be carried on. "I will say definitely that the experiments will be continued," he said, according to newspaper reports. "The commercial success of the rubber is unquestioned and so is the success of the many by-products from it."

Charles Edison said after his father's will had been filed that under present market conditions it would be too expensive to make rubber by the new process, but that in times of war or other contingency, the development would be very valuable. Further experiments will be conducted with a view to developing by-products which may have more immediate value, he said. He also commented on the successful vulcanization of goldenrod rubber in the following statement:

"During the early part of his illness, my father continued to direct all of his rubber experiments and reports were given to him each day. One thing which worried him when he became ill was the difficulty he had been experiencing in attempting to vulcanize rubber obtained from goldenrod because of the impurities in the goldenrod.

"Mr. Edison laid out a series of experiments which were tried in his laboratories and, within the last thirty days, a piece of vulcanized rubber, obtained from goldenrod, was brought to him.

"This was merely the successful culmination of one of his own experiments. This piece of rubber pleased him greatly and is now locked in the drawer of his desk at Glenmont."

## Exports of Automotive Rubber Goods Increase to $1,690,286 in September

SHIPMENTS of automobile tires, inner tubes, tire sundries and repair materials from the United States during the month of September had a total value of $1,690,286, a slight increase over the August figure of $1,649,255. British India was again the chief market for passenger car casings, truck and bus casings and inner tubes, although the dollar value of passenger car casings to Mexico, Belgium, and the Netherlands was somewhat higher. In the month 114,899 passenger car casings were exported with a value of $880,494 and 27,974 truck and bus casings, worth $547,397.

Rubber boots exported during the month totaled 105,692 pairs with a value of $215,077 and rubber shoe shipments numbered 139,592 pairs with a value of $136,529, representing a gain over the August totals. Exports of canvas rubber-soled shoes, however, continued to decline, amounting to only 79,581 pairs, valued at $47,987. The United Kingdom was the leading market for rubber boots, Switzerland for rubber shoes, and Argentina for canvas rubber-soled footwear.

Shipments of rubber belting in September amounted to 258,101 pounds, worth $107,881, and exports of rubber hose totaled 327,720 pounds with a value of $98,346, both showing further declines from the August totals. The United Kingdom was the principal customer for rubber belting, while the Union of South Africa was again the chief destination of rubber hose shipments.

During September, the United States exported 1,157,419 pounds of reclaimed rubber, valued at $51,096, or 4.41 cents a pound as against an average value of August exports of 4.39 cents a pound, and 3,781,734 pounds of scrap and old rubber, worth $80,006. Canada for the first time in many months dropped to second place as a market for reclaim, with the United Kingdom taking first position by a small

margin. Smaller amounts of reclaim were shipped to Colombia, Argentina, Spain, Germany, Australia, France, Venezuela, Chile and Nicaragua. France took the greatest quantity of rubber scrap, but the chief market in point of value was Spain. Appreciable quantities were again shipped to China and Hong Kong, with lesser amounts going to Japan, the Canary Islands, Algeria and Tunisia.

## Kelly-Springfield Tire Company Shows Profit of $214,662 in Third Quarter

THE Kelly-Springfield Tire Company for the third quarter ending September 30, 1931, showed an operating profit of $399,082 before depreciation and other charges and net profit of $214,662 after these deductions, according to a statement issued by William H. Lalley, president. For the nine months ended September 30 the company showed a net loss of $66,774.

"The affairs of the company are showing a progressive improvement," Mr. Lalley stated. "We have been able to report a net profit for each month since May 1 of this year. As of September 30 our ratio of current assets to current liabilities was 30 to 1, while as of September 30, 1930, the current ratio was 5.3 to 1. Furthermore, we are free of bank loans as compared with bank loans of $1,500,000 as of September 30, 1930.

"Despite general business conditions our sales have held at a steady level; in fact, our shipments to dealers for the first nine months of 1931 exceeded those for the same period in 1930."

Mr. Lalley expressed the view that renewed buying of automobiles, beginning late this fall and reaching full volume in the spring, would be a major influence in the revival of all lines of trade. "The replacement market alone," he pointed out, "is already of tremendous potentiality for there has been a buying holiday for the past 24 months. The country does not need a new industry to lead it out of the doldrums; it may look confidently to the automobile. In all essentials, I expect a repetition of the developments of 1921."

The company has not previously issued quarterly reports, and comparisons with former years are, therefore, unobtainable. For the first six months of 1931 the company reported a net loss of $281,436. In the full year of 1930 it showed a net loss of $3,796,054.

## Smaller Rubber Companies in Akron Find Sales High Despite Depression

SEVERAL of the smaller rubber manufacturing companies in the Akron area as well as in other rubber centers, have found that their sales are mounting steadily regardless of the current depression in general business conditions, making it possible for these firms to maintain regular working forces and to operate at or near capacity.

"We have worked full time and double shifts practically all year," reports L. E. Shunk, president and general manager of the L. E. Shunk Latex Products Company, "and we are at work now on a building that doubles our capacity." The new structure is now well under way and should be ready for occupancy in the near future.

Similar activity is reported by Latex Rubber Products, Inc., which commenced operations only this August. "We have 95 persons at work," says John R. Gammeter, vice-president and well known inventor, "and are operating at only half capacity now, but have plenty of orders. Akron has the distinction of owning the only two industries where the newest and highly efficient method of handling rubber latex in its liquid state and turning it into manufactured goods is available. We are developing these side lines, making use of liquid rubber and furnishing an outlet for industry that has been closed to us before. If there is as much expansion along this line in the next year as there has been in the past, the field looks encouraging and vastly important."

The Anderson Rubber Company, also of Akron, reports a steadily mounting accumulation of orders, while the Miller Rubber Company, subsidiary of the B. F. Goodrich Company, continues to find a steady and increasing market for the products of its own factory.

## Boston Woven Hose & Rubber Company Earns $277,656 in 1931 Fiscal Year

THE Boston Woven Hose & Rubber Company has reported for the year ended August 31, 1931, a net profit of $277,656 after depreciation and taxes, but before extraordinary inventory and reserve adjustments. This is equal after dividends on the 6 per cent preferred stock to $2.70 a share on 86,000 shares of common stock outstanding and compares to earnings in the previous fiscal year of $599,218, or $6.44 a common share.

Sales during the twelve months ended August 31 declined $2,940,000, or 32 per cent, and poundage of goods shipped dropped 10,770,000 pounds, or 25 per cent, according to J. N. Smith, president of the company. "Following last year's severe price declines in rubber and cotton fabrics, there have been declines this year of approximately 50 per cent in crude rubber and 25 per cent in cotton duck and sheetings. It is reasonable to expect greater stability from now on in the price level of our merchandise and a relief from the heavy write-offs which have been sustained during the past few years. The company is out of debt and has for the first time in its history gone through the year without borrowing."

The consolidated balance sheet of the company as of August 31 shows current assets of $3,469,832 and current liabilities of $274,214, leaving a working capital of $3,195,618. Working capital on August 31, 1930, was $3,459,534.

The directors of the company recently voted the payment of a quarterly dividend of $1 a common share on September 15 as compared to quarterly dividends of $1.50 a share paid previously. This places the common stock on a $4 annual basis as against $6 heretofore.

## Auto Accessory Manufacturers Report Further Business Drop for September

SEPTEMBER business of manufacturers of automotive accessories and service equipment showed a general decline under that for August, according to reports received from members of the Motor and Equipment Association, which includes several rubber manufacturing companies in its membership. The September grand index figure stood at 67 per cent of the January, 1925, base as compared to 79 for August and 89 reported for September, 1930.

Shipments of accessories to wholesalers remained at 66 per cent of the base as in August, but shipments of original equipment to manufacturers fell off from 70 per cent in August to only 54 per cent in September. Service parts shipments to wholesalers jumped up to 138 per cent of the base to come within one point of the figure for September, 1930, and to show a gain of 11 points over the August figure of 127.

**(Other news of the industry will be found on Pages 125-130)**

# *Oil Portrait of* EDWIN BINNEY

## By C. P. Morris of Binney & Smith Staff Whose First Painting Was Exhibited After the Age of 60

**C. P. MORRIS**
***The Painter Who Discovered His Talent After the Age of 60***

IT has been held by a number of philosophers, and particularly by Dr. Osler, that when man reaches the age of 60 he is past the stage of usefulness and is not expected to contribute much for himself or to society thereafter. How fallacious this theory can prove is evidenced by the fact that a member of the Binney & Smith staff has, after the age of 60, taken to oil portraits as a hobby and has already produced two such paintings which have received very favorable comment by art critics.

The artist is Courtland P. Morris, resident manager of the Philadelphia office of Binney & Smith Company. The success of Mr. Morris' new hobby is not a sudden discovery of hidden talents for he has had a local reputation for many years as a caricaturist. His first attempt in May of this year was a portrait of George Heckel, a leading executive in the paint industry, followed shortly after by one of Edwin Binney, president of Binney & Smith Company. In addition to his ability as an artist, Mr. Morris has a reputation for versatility in oratory, authorship, and golf. He joined Binney & Smith in 1895.

**The Portrait of EDWIN BINNEY**
***The first likeness of Mr. Binney to be printed in any rubber paper***

The portrait of Edwin Binney, reproduced on this page, is a remarkable likeness, but is one which is little familiar in the rubber industry. It is not generally known how much the pioneering work of Mr. Binney contributed to the early development and growth of the carbon black and lamp black industries—how at the age of eighteen he conceived the idea of moving plates over the gas flames to automatically collect the deposit of carbon black (the "channel process," in almost exclusive use today) —and how several years later he patented a process for the manufacture of oil lamp-black. Since those early days, Mr. Binney has been a leading figure in the growth of the carbon black industry to its present huge proportions, but so little has been written about him that one wonders how he has been able to accomplish so much in life without the industrial world knowing more about his many contributions to industry and society.

The answer is Mr. Binney's retiring nature. A man of rare achievements in industrial and financial circles, he has always shunned publicity or personal glorification of any kind.

Mr. Binney's life has not, however, been one of continual work. He has found time to develop a number of hobbies, chief among which is yacht building. At the beginning of the World War, when the Navy was in dire need of patrol boats, he started to build a 72-foot patrol boat but before it was completed the Government had begun getting deliveries from its contractors. He later used this boat for a cruise through the Great Lakes, down the Mississippi River, across the Gulf of Mexico and back home via Cuba and the Bahamas.

One of Mr. Binney's greatest prides is his development of twelve acres of swamp land in his home town. Greenwich, Conn., into a beautiful lake and park and its presentation to the town. In his honor it has been named "Binney Park" and an inscribed monument has been erected acknowledging the gift. Making things of beauty and utility where only ugliness or barrenness grew before is a trait of Mr. Binney which similarly led him to head a project which established Fort Pierce, Florida, as a seaport —a project which transformed a small coast city into a leading Atlantic coast harbor. His interest in Florida has also led him into fruit growing for which he has won many blue ribbons.

Edwin Binney was born at Shrub Oak, near Peekskill, New York, in the old frame house still standing, the birthplace also of his great-great-grandfather. The farm was originally a Crown grant. He was educated in the Peekskill and New York public schools.

At the age of eighteen he had charge of a carbon plant near Wellsville, New York, where he devised the "channel process" used in the manufacture of carbon black.

He was one of the founders of the firm of Binney & Smith in the early eighties, later changed to Binney & Smith Company of which he is now president. He is also vice-president of the Columbian Carbon Company. The success of these organizations is in large measure due to his sagacity, farsightedness and efficient administration. He is also an officer and director in many other well-known corporations.

# *Du Pont Announces a New* SYNTHETIC RUBBER at Akron Group Meeting

## Classed As An Outstanding Chemical Achievement — New Product, Called Duprene, Is Made by Controlled Polymerization of Chloroprene—Factory for Commercial Production Being Built

AT the Akron Group meeting of Rubber Division, A. C. S., held at the University Club, on the evening of November 2, 1931, the startling announcement was made, through three technical papers read before the gathering, of the development by E. I. duPont de Nemours and Company, of a synthetic rubber which is deemed so comparable to the crude commodity that commercial production on a large scale is already being planned.

The veil of secrecy, prior to the meeting, surrounding the subject matter of the papers to be delivered and the rumors that they would treat of a new and highly important development in rubber chemistry, brought an almost record attendance totalling 266 members and guests to the dinner which preceded the meeting and this was augmented by several score other members who reached the session in time to hear the delivery of the papers. The spirited discussion which followed the reading of the papers showed the display of interest in this revolutionary development and was probably more keenly entered into than ever before in the history of the Akron Group.

The dinner was enlivened with entertainment by the original Rubber Quartette, which so ably acquitted itself at the Buffalo meeting in September and which was composed of Messrs. Park, of Firestone; Dinsmore, of Goodyear; De France, of Goodyear, and Tillinghast, of New Jersey Zinc.

The three papers were presented by F. B. Downing, W. H. Carothers and Ira Williams, all of the chemical staff of the du Pont Company, and each representing and speaking for a group of chemists who participated in the arduous work leading up to the final success of the development.

### Product Called "Duprene"

The papers revealed that the new synthetic rubber is made by the controlled polymerization of chloroprene. "Duprene" has been selected as the trade name for the new rubber.

Press reports attribute the initial research and development of the process to the Reverend Doctor J. A. Nieuwland, of the University of Notre Dame. When his experiments had reached a certain point he consulted with the engineers of the E. I. du Pont de Nemours & Company, who developed his theories further, with the result as now announced.

The many efforts that have been made to produce synthetic rubber have been legion and have been due in part to the importance of rubber synthesis as a scientific problem and also to the limitations of natural rubber which restricts its use in many instances, and to the desire of every country to have a domestic source of supply in time of war. It is therefore a matter of great scientific and industrial interest that a commercially practical synthetic rubber has been found, which in several tested cases has been found to possess characteristics actually superior to natural rubber and in the event of a national emergency, be quite a satisfactory substitute for natural rubber for many of its present uses.

While the cost of production of "Duprene" at the present time is many times greater than the present market price of crude rubber, it is believed, nevertheless, that many commercial uses will be found for it because of its unique properties.

### Commercial Production Contemplated

The du Pont Company has announced that a plant for the production of its new synthetic rubber is under construction at Deepwater Point, N. J., but not yet in operation. Duprene will not be offered for sale immediately upon completion of the plant but the company's efforts for some time will be restricted to experimental work including plant scale tests in conjunction with rubber manufacturers and others who may have use for Duprene in their products. Because of the marked differences between Duprene and natural rubber it will be essential that such tests be conducted under the close supervision of members of the du Pont technical staff.

It is expected that Duprene will ultimately be marketed in two forms, namely, the plastic polymer and the emulsion polymer. The plastic polymer is capable of being processed in the same manner as unvulcanized rubber. Pigments, fillers, softeners and other ingredients can be mixed with it by milling in the usual fashion and it may be prepared for vulcanization by calendering or extruding, the same as ordinary rubber. Any of the methods used for vulcanizing rubber articles may be applied to Duprene excepting, of course, that no sulfur is required. Duprene articles have been vulcanized in open steam with and without soapstone, in dry heat and in molds.

At present Duprene is being manufactured in limited quantities sufficient only to provide material for the du Pont Company's program of research. Samples are not available for distribution.

Following is a technical description of the process as revealed by the papers read at the Akron meeting:

### Description of Process

The new synthetic rubber is made by the controlled polymerization of chloroprene, that is, chloro-2-butadiene-1, 3. Chloroprene is made by the addition of hydrogen chloride to mono-vinylacetylene, which is in turn made by the catalytic polymerization

of acetylene. All of the raw materials required for the manufacture of the new synthetic rubber are available in almost unlimited quantities.

The composition of caoutchouc was first determined by Michael Faraday more than a hundred years ago. In 1860 Creville Williams produced a hydrocarbon by the dry distillation of rubber and upon determining its chemical formula named it isoprene. He further found that isoprene may be polymerized and apparently recognized that rubber is, in fact, a polymer of isoprene. Since that time, repeated efforts have been made to synthesize rubber from isoprene, butadiene and dimethyl butadiene but none of these syntheses has produced a material equal to natural rubber for the production of soft vulcanized rubber articles and none of them has been commercially practicable excepting as a last resort when the supplies of rubber to certain European countries were cut off during the war.

Although chloroprene differs chemically from isoprene only in that a chlorine atom replaces the methyl group, it polymerizes spontaneously at many times greater velocity than isoprene and the resultant product is a fully vulcanized rubber having properties similar in a general way to the products obtained by vulcanizing natural rubber with sulfur. It is neither necessary nor desirable to add sulfur in order to produce a fully vulcanized rubber from chloroprene.

It has also been found possible to stop the polymerization at an intermediate point, thereby obtaining a plastic polymer which has the general properties of unvulcanized rubber. This material may be compounded with fillers, diluents, etc., the same as natural unvulcanized rubber and the polymerization or vulcanization can then be completed merely by heating it for a short time at a moderate temperature of 110 to 130° C. Natural rubber and all previously known synthetic rubbers require the addition of sulfur chloride, sulfur or a related element in some form in order to effect vulcanization. It is believed that the discovery of this rubber which can be vulcanized by heat alone will be of great assistance in the study of the vulcanization process.

Compared with natural rubber this new synthetic rubber is more dense, more resistant to water absorption or penetration by water, less strongly swelled by petroleum hydrocarbons and most other solvents and less permeable to many gases. It is much more resistant to attack by ozone, oxygen and other chemicals.

Chloroprene rubber is highly resilient, which is presumably partly due to its freedom from the impurities found in natural rubbber. It does not soften under the influence of heat but hardens slowly when heated at high temperatures and consequently the methods used for reclaiming vulcanized natural rubber are not applicable to chloroprene rubber. Excepting for a temporary thermal effect, milling does not soften the plastic polymer, which may be partly due to its resistance to oxygen. Acidic materials, which retard the polymerization of natural rubber, do not have this effect on the chloroprene plastic polymer, and since the latter contains no sulfur, it does not tarnish metal.

The polymerization of chloroprene also occurs very rapidly in aqueous emulsion. The resulting product constitutes a synthetic vulcanized latex which has much smaller particle size than natural latex. Upon evaporation of the water the particles coalesce much the same as do the particles of vulcanized natural latex and the resultant rubber has properties similar to those of the elastic polymer obtained by the spontaneous polymerization of chloroprene in the absence of water or by the vulcanization of the plastic polymer. Because of the small particle size, the new synthetic latex impregnates many porous materials that cannot be impregnated with natural rubber latex. Chloroprene can also be polymerized in the pores of bibulous or porous materials, thus intimately impregnating them with synthetic rubber.

## Pillow Tires May Replace Balloons

EXPERIMENTAL application of tires similar to Goodyear Air-wheels, the pillow-like tires of large air volume but low pressures, successfully used for several years on airplanes, is now being made on automobiles and trucks.

Experiments over the last three years with this big tire applied directly on a hub, are significant, in that they may indicate that this is probably the next step in the steady trend to larger tire and smaller wheel diameter, which has been going on in the industry starting with the first oversize tire, the intermediate balloon and then the present balloon tire.

An interesting comparison of the greater cushioning and easier riding qualities of the new Airwheel type tire with the balloon tire in present use on automobiles and trucks is that the new large tire has a greater air volume but requires only 10 to 20 pounds pressure, while the present balloon calls for from 32 to 40 pounds.

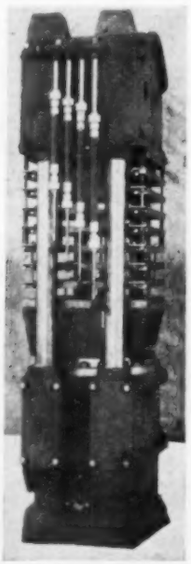
Also the Airwheel type balloon offers from two to two and a half times more surface to the road with greater resultant traction and has greater anti-skid properties on slick pavements.

For present experimental purposes Goodyear is making this new tire in several sizes. The tractor application involves a simple change in the hub.

# Old and New Models in Rubber Machinery

Someone recently said, "Replacing industry's obsolete equipment with improved machinery and tools now available is the way to win this economic war and to rebuild prosperity." Certainly this is true of the rubber industry, where much old equipment is still in use—despite the availability of modern machinery which is more economical, more efficient and considerably safer than the old equipment.—The Editor, THE RUBBER AGE.

LEFT: A 24" multiple opening hydraulic press of twenty-five years ago. In comparison to this note the latest model as shown below.



RIGHT: A 30" x 30" press built of more substantial construction for higher pressures. Steel plates require less space and provide more uniform heating.

*(Photos Courtesy Farrel-Birmingham Company, Ansonia, Conn.)*

**The presses illustrated in this series, in the October 25th issue, were attributed to the Adamson Machine Co., Akron, Ohio, in error and should also have been credited to Farrel-Birmingham Co.**

# Basic Causes of Accidents in the Rubber Industry*

## To Determine the Causes of Accidents Is to Aid in Eliminating Them—Classification of Accidents Such as "Falls" Should Always Indicate the Causes —Analysis of Industrial Accidents Shows 90 Per Cent Are Preventable

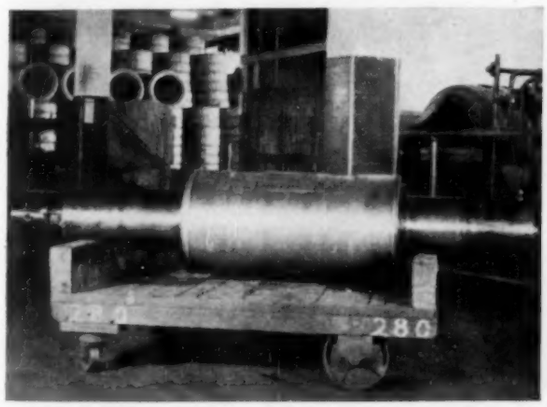
By Ernest W. Beck

*Supervisor of Safety, United States Rubber Company, Passaic, N. J.*

IN ORDER to determine the basic cause of an accident, one should study and investigate the conditions and operations which cause or help to cause the accident. When you determine the basic cause of the accident then you are in a position to develop ways and means of eliminating the cause.

When reading statistics on accidents you will notice they designate the *types* of accidents as *causes*. This is a very common practice and does not get us very far. The *type* of an accident is not always the *cause* because you cannot cure a type. Unless you go back of the type and find the real cause, you have no remedy. For example, a man may fall on the floor and break his leg. The accident might be classified as "fall on floor." The real cause might be due to failure to enforce rules, lack of maintenance, improper equipment, or lack of instruction. Perhaps in this case it was some supervisory cause which if corrected would most readily have prevented the accident. It is only a matter of selecting the particular cause that will most readily prevent an accident. Only by doing this shall we prevent accidents.

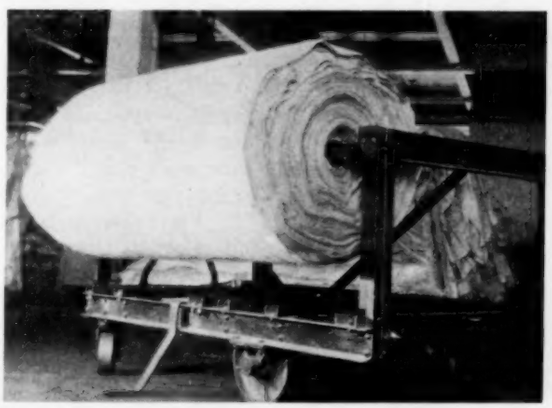
Statistics mean very little when you speak of percentages of falls, percentages of machinery accidents. They



Flat Trailer Built Up on Ends for Transporting Tread Calender Rolls. Center of Built Up Ends are Hollowed to Fit Shaft of Rolls

mean much more when you speak of an accident caused by inexperience, lack of mechanical safeguards, lack of instructions, or something which is a direct cause of the accident. In fact, statistics at times are misleading. Until we analyze them they are meaningless.

Take as an illustration a machinist mounting a casting in a chuck. Suppose the chain hoist should fail and the casting drop on the chuck or machine, damaging the equipment seriously. This would be an accident, even if the mechanic were not injured. The first thing that management would do in this case, would be to find out why the accident happened. Management would not say that the accident was caused by a falling object and let it go at that, but would immediately inspect the overhead track,



Outrigger on Fabric Roll Truck Prevents Truck from Tipping Over When Only One Roll on Truck. Each Roll Weighs About 1200 to 1300 lbs.

the chains, hooks, pulleys, etc., in order to determine the exact *basic* cause of the accident.

I believe we should have this same analysis in determining the cause of our accidents. Recently I was reading over some accident statistics, analyzing the cause of accidents in a certain industry. They were classified according to the most important causes which were as follows: 1. Handling material. 2. Falls. 3. Machinery. 4. Falling objects. 5. Striking objects. 6. Hernias. 7. Other forms of strain. 8. Scalding. 9. Elevators. 10. Infection, etc.

The point I want to bring out is, after analyzing these statistics, I found I had accomplished practically nothing, for these classifications in themselves were really not *causes* of accidents. I believe I am safe in saying that none of the accidents mentioned in the statistical report were really caused by the classifications mentioned. Take for instance the classification of machinery. I cannot see how you can blame a particular machine for causing an accident any

*Paper presented before the Rubber Section, 20th Annual Safety Congress, Chicago, Ill., October 12-16, 1931. Photographs accompanying the article were not exhibited in connection with Mr. Beck's paper but are supplied through the courtesy of the National Safety Council.

more than you can blame an automobile for being the cause of an accident.

A large number of accidents were classified as due to falls. What I would be most interested in knowing is just what caused the fall. Was it due to defective equipment, not obeying instructions, or taking a chance? When you have an accident classified as due to a fall and find out that it was really due to a defective step-ladder. I see no reason why you should blame the accident on the step-ladder. It is surprising after a thorough investigation through a large plant how many defective step-ladders you find and accidents caused by this equipment classified in

Stone Holder Attached to Side of Mill Eliminates Number of Small Cuts Received When Sharpening Knives. All Minor Injuries but Subject to Infection

the wrong manner. If the above accident was classified under "lack of proper equipment" the safety engineer would be in a position to make a definite recommendation.

A slip or fall may be the cause of an injury but not the cause of the accident. The accident itself is the slip and the fall. What we want to determine is the cause of the slip or fall, not necessarily the cause of the injury. The accident is not the injury but the accident is the slip or fall. Now, the point is, what caused the slip or fall. Unless we know actual causes, we cannot bring about effective remedies. Progress can best be made through actual knowledge of accident causes.

I suggest that a determined effort be made to bring about a revision in the present practice of classifying accidents by causes and that an effort be made to obtain the complete story of accidents from which the real cause may be more readily determined.

Strictly speaking, there is no such thing as an accident because the things that we call accidents are merely the working out of the law of cause and effect. A great majority of our accidents are due to the human element. I believe it would be a good thing if we could devise a new symbol for this word "accident" which might involve the responsibility of the individual because so many people regard an accident as merely an act of providence or something that they cannot prevent or something which just happens.

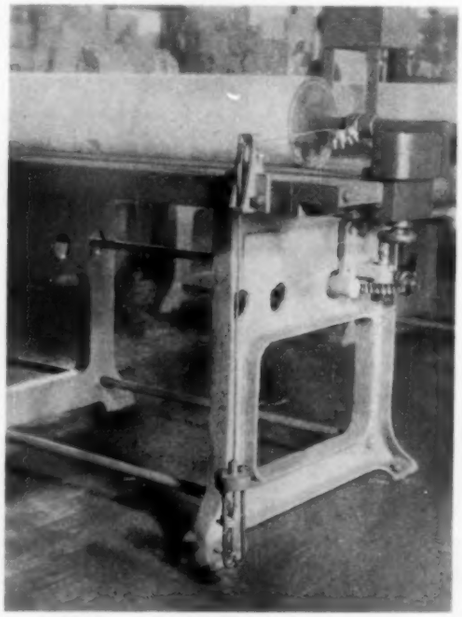
The only way to bring about a reduction in accidents is through the knowledge of *basic* accident causes. In solving any problem, the first thing you do is to find out what is wrong and then you proceed to correct it. I am sorry to say that this is not always done in accident prevention work. So often the injured man is blamed when as a matter of fact the responsibility could very easily be placed on the shoulders of some other party. The reason for this is obvious. We dislike to hold a court of inquiry; dislike to blame someone on the supervisory staff or even the management, but if the safety engineer is going to make any progress he must have all the cards on the table and not close his case until he has solved his problem.

In getting at the causes of accidents, in some cases there will be persons responsible who will try to shed responsibility, but the safety engineer has the advantage at all times in accident prevention work of bringing forward the argument that we do not want the same thing to happen again and for this reason we want to know just what we should do in order to correct the condition.

I do not think we should stop classifying our accidents by types, for it is valuable to know what accidents are classified as burns, falls, explosions, infections, etc., just as it is valuable to know the cost of accidents together with the time lost. I feel that it is important to know the cause of the accident itself as distinguished from the cause of the injury.

It is a fact that physical hazards are becoming less a real factor in safety each year. However, when we do have accidents caused by physical defects, they are usually very serious and run into considerable expense and time lost.

When you have the correct analysis of the basic causes of accidents you will probably be convinced that more than 90 per cent of your industrial accidents are preventable. The analysis of your basic causes will probably show a large number of cases due to lack of proper supervision.



Combination Static Collector and Guard to Prevent Roll Falling Off Front of Pocket Building Table. Weight on End of Cable is Pulled Against Bracket Limiting Travel of Roll

This should mean that more time and effort should be devoted to this phase of safety work which is so important.

After analyzing your basic causes of accidents the next thing to do is to set out and eliminate the cause. When you do this you will find that it is not only possible to prevent a great many of your accidents but you will also make for economy, efficiency, greater production and greater profits. We have tried analyzing our *lost-time* accidents according to basic causes. If we were to do the same with our no-lost-time accidents, I have every reason

(*Continued on page* 122)

# ARBITRATION *in Crude Rubber Trade Disputes*

## Agreements by Arbitration Now Enforcible At Law in Thirteen States — Rubber Trade Organizations Have Also Set Up Their Own Arbitration Tribunals

*By* J. L. JULIAN

*President, Rubber Exchange of New York, Inc.*

J. L. JULIAN

WHEN Priestly, the English inventor who discovered oxygen, found that the hardened juice of a certain tree would rub out pencil marks, he called it *rubber*. Since that time, this product, which was a curiosity a century ago, has become a necessity, cushioning the wheels of progress and playing an important part in our daily life.

Just how important the industry has become is shown by statistics for 1930, which indicate that the value of rubber products manufactured in the United States was a little more than $872,965,000. Approximately two-thirds of the world's supply of crude rubber is turned into finished products in this country, and of this amount almost three-quarters go into the manufacture of rubber tires and tire accessories.

If the motor car put the world on wheels, it was rubber that made those wheels run smoothly, and it is rubber that absorbs the shocks and prevents the wastes of industry. And with the development of the rubber trade, the industry has developed for itself a modern method of procedure which performs for it some of the shock-absorbing and waste preventing services which rubber performs for the world. The modern method referred to is commercial arbitration, and probably in none of the great industries is arbitration so well developed as in the rubber trade. As far back as 1914, before there were adequate arbitration laws in this country, arbitration was established in the rubber trade and is today being used by the important trade organizations in the industry. The Rubber Trade Association, the Rubber Manufacturers' Association and the Rubber Exchange of New York all include arbitration in their trade activities, have carefully prepared rules of arbitration procedure and recommend the use of arbitration clauses in the contracts of their members.

### State Arbitration Laws

In the September 25, 1928, issue THE RUBBER AGE published an article which described the arbitration facilities available in the rubber trade and an outline of arbitration generally. Since that time arbitration has developed as rapidly as the rubber industry in recent years. One reason for the growth of arbitration has been the enactment of adequate arbitration laws in the various states. When the article was published there were only seven states that had an adequate law; now there are thirteen, and of particular interest to the rubber trade is the fact that Ohio joined this group of states this year. The list now includes New York, New Jersey, Massachusetts, Connecticut, New Hampshire, Rhode Island, Pennsylvania, Louisiana, Ohio, Wisconsin, California, Oregon and Arizona.

By an adequate law is meant one which not only makes an agreement to arbitrate an existing dispute enforceable, but which also makes an agreement to submit to arbitration a future dispute which may arise out of the contract of which the agreement, or arbitration clause, is a part, valid, irrevocable, and enforceable. Most of the remaining states have arbitration statutes which make a submission agreement enforceable, although only in the thirteen does the law conform to the United States Arbitration Law, which applies to interstate commerce and foreign trade, as well as maritime transactions.

### Advantages of Arbitration

Every dealer and trader in the rubber industry knows the value of an arbitration and many have enjoyed the benefits resulting from the protection which such a clause affords, when disputes have arisen. They know:

(1) That a controversy which cannot be settled amicably will not find its way into the courts, causing long delays, tying up assets and merchandise, and damaging the credit of the parties involved;

(2) That the costs of disposing of the controversy by arbitration will be greatly less than the costs of litigation;

(3) That the matter will be submitted to impartial experts who are thoroughly familiar with the customs and conditions of the trade;

(4) That the privacy of the proceedings will prevent damage to the reputation of the parties or their product, which so often results from the publicity of a public trial;

(5) That as a rule the good-will of a customer or business association can be maintained through this more friendly procedure and future transactions not jeopardized.

In the event a dispute arises between a member of one of the various trade organizations in the rubber industry and a non-member, which the latter is reluctant to submit to arbitration under the rules of one or the other of them, there are facilities always available to the parties, wherever the dispute arises. There has been established by the American Arbitration Association a national

system of arbitration through a chain of tribunals distributed over more than 1,700 cities, in which arbitrators on a national panel of arbitrators serve without compensation, in a standard practice as administered under a "Code of Arbitration Practice and Procedure." These men are not professional arbitrators interested in fees, but business leaders from all branches of trade who believe in arbitration and want to make that contribution to its success. Thus, under this code, the practice of arbitration is standardized and made applicable to any jurisdiction. The use of an arbitration clause recommended by the Association, prepared to meet legal requirements, makes this system available to any business man in the United States, just as it is available to any parties who wish to submit an existing dispute.

### Arbitrating Foreign Commerce Disputes

In its domestic trade the rubber industry is ideally situated to benefit from arbitration, through its own arbitration machinery and that established in the American Arbitration Tribunal. But what about foreign trade? What happens when a dispute arises which is not arbitrable in the United States or which the other party will not consent to arbitrate in this country?

Crude rubber comes from the far places of the earth, just as our rubber products are shipped to the ends of the world. When a dispute arises concerning shipments delivered in South America or Spain or Italy, must the manufacturer or shipper take his chances on settling it or suffering losses because of delayed settlement, or can he arbitrate his difference as successfully as though the dispute arise with a customer, or a seller, as the case may be, in this country?

From the Far East, from Africa and from South America comes the crude product. First discovered on the Amazon, it is there that a million-acre rubber plantation was recently started. And with the world-wide distribution of the manufactured product, this industry particularly needs a world-wide system of arbitration which will operate speedily and effectively when disputes arise in this vast foreign trade. European competition grows stronger, and the need of maintaining the good-will of foreign buyers of our product is correspondingly great. Unsettled economic conditions, the breakdown of credits, rising or falling of the market and fluctuation in prices all increase the need of arbitration machinery to dispose of the controversies which are bound to arise.

One of the great benefits of arbitration and the use of arbitration clauses is that they meet the unexpected when it arises. None of us, when we enter into a business transaction, expects a controversy to arise out of our business relation, but such controversies do arise nevertheless. And members of the rubber industry will welcome and cooperate in any plan which will extend to foreign trade the advantages now enjoyed in our domestic contracts, when these unexpected differences occur.

The following is an abstract of a typical case involving the arbitration of a dispute arising out of rubber trading transactions. The case is an actual one but the names of the original parties are omitted for obvious reasons.

### Rubber Trade Association of New York
### Docket No. 856
### Nature of the Dispute

The parties here cannot agree as to whether the original contract of sale was a shipment or an ex-dock or warehouse contract. The A. Company claims that it did not take title to the rubber until its arrival on the dock and that therefore it should be reimbursed for the loss of profit on quantity of rubber which was lost in shipment. The B. Company contends that the sale was on a shipment contract, and that all of the responsibility of the B. Company ceased when the vessels were declared to the A. Company.

### Positions of the Parties

Both the A. Company and the B. Company deal in crude rubber. On March 23, 1925, the B. Company sold to the A. Company 15 tons of rubber under a contract which read as follows:

Contract No. 716
Sold to the A. Company
For account of the B. Company.

| | |
|---|---|
| Quantity and Grade | Five (5) tons (about 2,240 lbs. each) Good F. A. Q. Ribbed Smoked Sheets Hevea Braziliensis Eastern Plantation Rubber, known as type #50 as per sealed sample in broker's possession.<br>Also ten (10) tons (about 2,240 lbs. each) F. A. Q. Ribbed Smoked Sheets Hevea Braziliensis Eastern Plantation rubber, known as type #51 as per sealed sample in broker's possession.<br>Both lots guaranteed to be shipped from the Far East, free from mold.<br>Price: ————c per lb. ex-dock and/or warehouse port of New York.<br>Terms: Cash.<br>Shipment: March/June shipment 1925 from the Far East, at the seller's option.<br>(Signed) R. Company,<br>Brokers. |

Accepted,
B. Company.

The B. Company as sellers declared 6 tons of rubber by the Steamship G. and 9 tons by the Steamship H. The 6 tons declared on the Steamship G. were properly delivered and the delivery was accepted. As to the declaration of rubber on the Steamship H., only 8¼ tons were delivered. The question arose as to whether the A. Company as buyer was entitled either to delivery of the balance, three-quarters of a ton, or to a wash-out difference,[1] or whether the delivery of the 8¼ tons should be accepted as a final completion of the contract. Both parties at the hearing admitted that the evidence would justify the conclusion that 9 tons of rubber were shipped from the Far East on the Steamship H. but that the three-quarters of a ton was misplaced by the steamship company. Mr. K. of the A. Company explained that he felt that inasmuch as the contract was made ex-dock or warehouse he was entitled to a full delivery. While he admitted that if the contract had been made C. I. F., the count of the steamship company would undoubtedly have to be taken as final and the loss sustained by the buyer, he insisted that since the price was set ex-dock or warehouse, the seller should either make good the deficiency in the contract by delivery of three-quarters of a ton of rubber or by settling the difference by a wash (paying the difference between the contract price and the market price as of the date of delivery).

Mr. L. of the B. Company explained his view of the transaction in the following words:

"We sold the rubber, or I sold the rubber; originally

[1]When a seller cannot make a delivery in whole or in part on a contract of rubber, the buyer may consent to wash the difference rather than insist upon a replacement of the rubber or a default of the contract. When an agreement to wash is entered into by the parties, it merely signifies that the parties take the difference between the contract price and the market price for the given type of rubber as of the date of the wash. Thus, if the market price has increased since the original contract date, the seller will pay a certain sum to the buyer to be relieved of his contract to deliver the rubber; if the market has declined, the buyer will pay a certain sum to the seller. In either situation the buyer will be in exactly the same position as if the rubber had been delivered, for he will be enabled thus to purchase rubber at the market to fulfill his requirements for physical rubber.

I offered it through the R. Company for the account of my shipper in Singapore, on a letter of credit basis, but the R. Company said it could not sell it (the rubber) on a letter of credit basis, but could sell it on shipment from the East provided I could arrange for the financing. So I accepted it that way and arranged for the financing. So that is why the shipment, which is stated very plainly on the contract, was made ex-dock or warehouse, New York, because we financed it. I think the rules of the Rubber Trade Association make a very distinct difference between delivery on arrival contracts and shipment contracts. What Mr. K. claims is a default on those 5 bales which the steamship company lost in transit, or disappeared.

"Now there can be no default—in the first place I would call attention to Rule 9 in the Rubber Trade Association. After declaration should the vessel or vessels carrying any portion of a contract calling for shipment be lost, such contract is to be canceled to the extent of the goods lost. Should the shipment not be declared by the seller—such loss shall not vitiate the contract.

"I claim that inasmuch as we made proper declarations after shipment I absolved myself of any claim which is an insurance claim or a claim for loss which is beyond my control. The declaration, according to this, makes any damage to the goods or loss of the goods on that steamship subsequent to the declaration, for account of the buyer. All we could do was to claim the invoice value of the three-quarters of a ton but I could not compel the steamship company to pay the market price at the time of the claim. If Mr. K. wanted to protect himself for the difference in the market on a shipment contract, he could have taken out insurance for any additional amount he chose to, in which case this loss would have been covered by the policy. Our shipment policy on that steamer and on all steamers covers for such loss provided the steamship company does not pay, but only to the extent of the invoice value.

"I call attention again how the rules of the Rubber Trade Association are making a difference between arrival or delivery contracts and shipment or C. I. F. contracts. Default occurs under Rule 11—'On arrival or delivery contract, when a seller fails to tender within contract time'—that is the only time when default occurs. Now look at the next page; a difference is made on default of shipment or C. I. F. contract, the two contracts are grouped together. But here it does not say when a seller fails to tender, but whenever a seller shall admit he has failed to fulfill the terms of his contract.

I claim after we obtained the bill of lading and shipment documents, the receipt of the steamship company for the quantity sold, that our responsibility ceases; we have lived up to the terms of our contract to ship that quantity of rubber in that contract time. There can be no default for a miscarriage or non-delivery of a small quantity of rubber, and consequently under this and under Rule 9 any portion so lost on a shipment contract or C. I. F. contract is not obligatory on a seller to replace or to pay the difference in the market, but it must be canceled."

In answer to a question by the Arbitrators, Mr. L. of the B. Company stated that he had already paid to the buyer, the A. Company, the invoice value of the three-quarters of a ton rubber not delivered, in anticipation of receiving the same from the steamship company.

In his summing up Mr. K. of the A. Company explained that what he was really claiming for was the right to invoice back the quantity of rubber short on the delivery at the market price as of the date of delivery, a procedure similar to that which would be proper in case of a default or a contract. In fact, the A. Company was claiming for the profit which it would have made on the three-quarters of a ton of rubber had it been delivered.

**Award of the Arbitrators**

The seller has fulfilled his obligations under the contract by tendering to the buyer the number of cases shipped on declared steamer, and the buyer has no right to claim from the seller more than the amount recovered from the ship owners for the three-quarters of a ton of missing rubber. The Arbitrators interpret the contract as a "shipment" contract.

Cost of arbitration including stenographic fees for the account of the A. Company.

# Please the Boss

[EDITOR'S NOTE: The following remarks, taken from "Doc Somerville's page" in the current issue of *The Vanderbilt News* are both interesting and timely and can well be read to advantage by those in the offices and factories of the rubber industry.]

THE past several years we have seen big black type advertisements in the magazines, extolling business school courses intended to equip enrolled workers to earn and receive bigger wages or salaries.

More recently there have appeared a few articles in lighter type on how to get a position, and such advice right now is quite timely.

To the great majority of people though, it would seem that the most important thing to them right now might be *how to hold a job which they already have.*

The answer might be:

PLEASE THE BOSS . . . try to make his day's work a little lighter or easier whereby he may have a better opportunity to make his job and yours more secure. Bear in mind he may be working for a still bigger boss.

PLEASE THE BOSS . . . do your work so well that, while it may not be absolutely perfect, it may be 100% satisfactory to the boss; after all he may not be entirely unreasonable. Whether you are a messenger boy or climbing up as a junior executive, acquire the reputation in the mind of your immediate chief of being 100% reliable, trying to give him what he wants when he wants it. Make yourself so dependable and capable and thereby your job so secure that when the company is forced to "make a retrenchment" you will be one of the last ones in your class to be let go.

PLEASE THE BOSS . . . do for him what he wants done and do it the way he wants it done; work for him in a whole-hearted way. If you can't convince him that your way is better, do it his way anyhow. He has the right to expect that much of you. If he is a wise boss he will give you all the freedom of action and expression possible.

And finally, if you are convinced that your boss is all wrong, that you can't get by him, that you are stymied, or that the company does not treat its people right, then in all fairness to the company, to your boss and to yourself, take yourself out of that company and get yourself a job where you can be in agreement with the one for whom you are working. Give the boss a chance without dismissing you to get some one who will work with him. If you are going to throw rocks, get out and throw them from the outside and they will probably do less harm and you may feel better. Remember you can do your work satisfactorily without hurting or harming anyone. You can't be very happy while working for one whom you dislike; but probably one of the greatest pleasures in business is that of working for one with whom, after a little reasoning, you can agree on nearly any and every subject.

# Basic Causes of Accidents

(*Continued on page* 118)

to believe that we would find the same causes predominating in this group. Concentration upon the reduction of minor accidents frequently automatically takes care of the major or severe accidents as well.

Your number of accidents is controlled by proper supervision. I believe the majority of accident troubles in industry can be cured by the foremen. They should be held responsible for the proper machine guarding and the improvement of what is known as mechanical or plant physical condition. In other words, those accidents that fall into the classification of supervisory and physical, are both controlled by either the employe or the employer. A careful employe can perform his work safely under hazardous operating conditions. Management can operate safely since it has charge of the employing of careful and experienced help. Management also has charge of the training, instruction and supervision of its employes as well as the proper guarding of its machines and the adoption of safe methods and practices.

A great many people believe that accidents are usually due to outside physical causes, but you gentlemen know that there are mental causes of accidents also. Lack of forethought, for example, in doing things without consideration of the possibility of mishaps. Another mental cause is inattention or wool gathering. Persons with slow mental and physical reactions on jobs that require alertness and quick coordination. On the other hand there is the nervous, quick acting employe. He at times is also a hazard to himself and other. Irritation also is a frequent cause of mishap. Noise is irritating to some but not to others. Worry is unquestionably a contributing cause. All of these factors tend to develop accident prone employes. Individuals differ in accident susceptibility. It has been proven that the liability of workers to sustain accidents is not equal and that some are inherently more liable to sustain than others. A frequency curve would show that the bulk of the accidents in any group is sustained by a relatively small number of individuals in the group.

### Making Up Personal Injury Reports

We have in our company a personal injury report that we use in connection with our analysis of the *basic causes of accidents*. In addition to the history of the accident, which includes all circumstances occurring prior to and immediately following the accident, we ask each foreman to underline the predominant cause of the accident, what has been done to prevent a recurrence, together with any recommendations. The foreman signs the report. After glancing over this report you can see at once that the foreman is making the analysis. If no instructions were given, he is required to state so. If the machinery was unguarded or ineffectively guarded, he also makes a memorandum accordingly. Take for example, an accident that happened where tools were defective. The foreman would be required to underline *defective tools*. This report is passed on to the safety engineer and gives him just the information that he wants in order to correct the situation. It may not be the fault of the foreman that the tools were defective, but it gives the safety engineer an opportunity of presenting the proper facts before the powers that be in order to correct the hazard.

The reporting of an aceident in this manner means a little more work on the part of foremen but I believe the time is well spent, and when the work is properly done and followed up, the tendency is to reduce the number of accidents, thereby reducing the amount of accident report work.

Following is an interesting table taken from a report submitted to the National Safety Council. A group of 600 cases of lost-time injuries was studied. It shows the steps that probably would have prevented the mishaps, together with the percentage of cases:

| | |
|---|---|
| Discipline | 17.68 per cent |
| Instruction on safety methods of working | 15.12 " " |
| Warnings to be more careful | 12.38 " " |
| Enforcement of safety rules | 11.69 " " |
| Improved inspection methods | 8.42 " " |
| Changed or new tools or equipment | 7.05 " " |
| Additional personal safe equipment | 6.00 " " |
| Additional safeguards | 4.64 " " |
| Change in methods of doing work | 4.47 " " |
| Change in plant layout | 3.94 " " |
| Safety education | 3.09 " " |
| Physical examinations | 2.23 " " |
| More suitable work for employee | 1.55 " " |
| General discussion at safety meetings | 1.03 " " |
| Closer supervision of details of work | .35 " " |
| Enactment of new safety rules | .18 " " |
| Clean-up of plant | .18 " " |
| | 100 per cent |

Recently I made a survey of the basic causes of all the lost-time accidents in two of our largest factories, and I was surprised to find that at each plant the majority of causes were the same. The greatest number of accidents was due to disobedience of instructions. Next came poor judgment, then unsafe practices and fourth, haste. You will note that in each of these four cases, the causes were due to the human factor. You might say, "I notice that you state that the largest number of accidents were due to disobedience of instructions. Don't you think the foreman is trying to pass the buck on to the worker?" In a few cases, I will agree with you. However, we have the basic cause, which is disobedience of instructions. It may mean that the foreman was disobedient in not giving his instructions as well as the worker being disobedient in not following instructions. In other words I believe we have the pulse of our situation, namely that the foreman may not be putting across his instructions. He may be a poor teacher. When these facts are presented at a foremen's meeting I believe you have an excellent opportunity to register on your foremen the importance of giving proper instructions and seeing that instructions are properly followed. This is an important responsibility of every foreman.

### Cooperation Necessary to Accident Prevention

I have had the unpleasant task of investigating many serious accidents and I am sorry to say that some accidents would never have happened if safe working conditions and proper equipment had been provided and used. Accident prevention, to accomplish the desired results, must have the whole-hearted support of the entire organization and the management must be willing to back up its good intentions financially without quibbling over minor expenditures. Safety is not a one-man job. The success of the work can best be measured by the number of people who are cooperating and if the safety director is wise, he will stay in the background as much as possible and stimulate the interest of those who are on the firing lines, and in a position to put the thing across.

He should by all means give credit for results achieved to his helpers as the good work will be reflected through the efforts and results of his associates. He should have no thought of ever finishing his job, as his task is one of eternal vigilance.

## Foxboro Anti-Ambi Thermometer

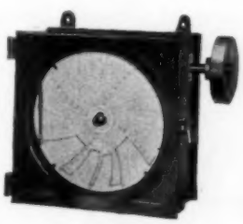
ACCURACY and freedom from the effects of ambient temperatures (case and tubing temperatures) are the claims made for the new "Anti-Ambi" recording thermometer recently developed by the Foxboro Company of Foxboro, Mass.

This new recording thermometer gives bulb temperatures at all times irrespective of summer heat or winter cold. The case and tubing may be enclosed in a cabinet and the temperature changed rapidly or slowly up and down for 50° and the pen will remain perfectly steady. The thermometer is designed for use on temperature ranges up to and including 250° F.

The instrument is unique in construction. It contains no cams, compensating levers, bi-metallic strips, nor retarding action of any kind. A special construction feature is found in the small bulb. The thermometer is so designed that it can make use of a sensitive bulb as small as one inch long. This feature will be found very useful particularly in measuring temperatures in pipes.

## Amthor Operating Recorder

WITH the new Amthor operation recording device, manufactured by the Amthor Instrument Company, 309 Johnson St., Brooklyn, N. Y., it is claimed to be possible to "plot" the entire operation of the machine on which it is installed. It automatically records, on a 8-inch chart, a continuous picture of the speed or rate of production at any time and any change in speed, starting and stopping times, slowdowns, non-productive periods, the time and duration of each, and the actual producing and idle time.



**Amthor Operation Recorder**

The recorder movement is based on the centrifugal principle, which affords a uniform action. The motion of the governor is transmitted directly to the pen arm by connecting links. Direction of rotation has no effect upon the governor mechanism. The pen arm movement remains unchanged even though the direction of rotation is reversed. The action is purely mechanical. It is entirely independent of temperature change or magnetic influence. The operation record is made by a non-spillable glass reservoir pen. The chart is driven by a standard clock movement to give either a 12 or 24 hour record as specified.

Wear is eliminated by the use of precision ball bearings which require lubrication about once or twice a year. A damping device takes up any undue vibration or shock and imparts a steady natural motion to the pen arm. The recorder case is fully moisture proof and is finished in dull black enamel. The instrument can be supplied with drive on either side or back drive, and for use with either belt, coupling or flexible shaft connection. For long distance installation, cord and special overhead guide pulleys are provided.

The Recorder can be efficiently applied to practically any type of industrial plant machinery, for purposes of either recording operation or to detect irregularities in operating conditions due to any number of undetermined causes such as faulty driving arrangements, etc. In addition to the continuous operation record, it also supplies specific constructive data directly pertinent to the operation and type of output of the individual machine.

## Rubber Flooring in the New Waldorf-Astoria

RUBBER flooring is one of the chief interior decorative features of the new Waldorf-Astoria Hotel, recently opened in New York City. The installation called for over 50,000 square feet of "Royalite," the product of the United States Rubber Company.

Practically the entire first floor of the giant building is in rubber tile, including the famous "Peacock Alley," the main lobby and the lounges and arcades. Carpets will be used to cover a great deal of this flooring during the winter months but in the summer these will be removed to give a cool effect. Rubber flooring is also laid in the entrance halls of many of the de luxe suites on the upper floors and in the halls. Various attractive designs and color schemes have been used, the design differing on each floor, but with cream (ecrot) and black predominating in the main lobby and lounges.

**Part of the East Arcade of the Main Lobby**

Since the opening of the hotel it has been estimated that over 10,000 people have passed over this flooring per day.

## Italian Tire Exports—First Half 1931

ACCORDING to preliminary official statistics, Italy exported 3,503,800 kilos weight of pneumatic casings and tubes during the first half of 1931, as compared to 3,635,800 kilos in the same period of 1930.

It is estimated that on the average, one automobile casing is exported for about every eleven kilos weight of pneumatic tires and tubes, but this varies in different markets depending on the extent of the Italian trade in inner tubes and in casings for motor cycles and cycles.

Belgium was the best market for the Italian tires, taking 34,436 casings, as estimated. Argentine was a close second with 32,464 casings. British India and Ceylon and Germany were the other prominent markets.

# EDITORIAL COMMENT

## *An Open Letter to the Rubber Industry on Unemployment Relief*

TO EXECUTIVES OF RUBBER MANUFACTURING COMPANIES AND CHEMICAL AND MACHINERY SUPPLY CONCERNS.

Gentlemen:

To help relieve the unemployment problem among plant executives, technologists and others whose experience has been gained largely in the rubber industry, THE RUBBER AGE recently announced a plan whereby it now accepts for publication, at no cost whatsoever, classified advertisements from unemployed men with rubber experience.

In our last issue we published over a score of such "Situations Wanted" ads and already a number of replies have been received from interested concerns indicating that our plan will produce results.

We suggest, therefore, that manufacturers and suppliers alike add to their staffs one or more of the many available men whose services may be obtained at today's low wage levels. Consult the classified ads of THE RUBBER AGE and note the diversified sales, executive and technical experience which is available. An opportunity to select help of such high character is not always present.

THE RUBBER AGE is glad to contribute its facilities and services in the above fashion, but your cooperation is needed to help relieve the condition in which many men find themselves, through no fault of their own.

These men seek neither sympathy nor a dole—they want a job.

Sincerely yours,

THE RUBBER AGE.

Peter P. Pinto

*General Manager.*

The RUBBER AGE

*Published on the 10th and 25th of each month. The Only Twice-a-Month Rubber Publication.*

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THE RUBBER AGE is indexed in *Industrial Arts Index*

*General Manager*.....PETER P. PINTO
*Managing Editor*.....J. P. BUSHNELL
*Assistant Editor*..... T. H. DAVISON
*Circulation Manager*.....A. M. SMITH

*Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.*

# The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

## TIRE STOCKS DECREASE TO 60.2 DEALER AVERAGE

The semi-annual survey of tire dealers' stocks by the Rubber Division of the Department of Commerce shows that 26,882 independent dealers on October 1 had a total of 1,617,366 casings, an average of 60.2 per dealer. On October 1, 1930, the survey showed that 31,522 dealers had 1,965,728 casings, an average of 62.4 per dealer. Average October dealer stocks in previous years have been 68.4 in 1929 and 64.8 in 1928.

A number of dealers segregated this year as mass distributors were in 1930 included as independent dealers, making an exact comparison impossible. Mass distributors were shown to have stocks of 1,987,284 casings on October 1. The report concludes that mass distributors' stocks were to some extent greater on October 1 than on April 1 of this year when they were first enumerated and that independent retailers' stocks were practically unchanged from October 1, 1930. The number of retail outlets, including those used by mass distributors with the independents, is believed to be greater now than a year ago.

Independent dealers' stocks of inner tubes dropped to an average of 80.8 as against averages of 89.2 in 1930, 103.4 in 1929 and 107.4 in 1928. Dealers handling only a single make of tires numbered 70.74 per cent of the total this year as against 70.26 per cent a year ago.

## RUBBER TRADE AID IS ASKED FOR UNEMPLOYED

A. L. Viles, general manager of the Rubber Manufacturers Association, Inc., is actively soliciting the co-operation of the Greater New York rubber trade in the raising of funds for unemployment relief. Mr. Viles, by direction of the officers of the Rubber Manufacturers Association, Inc., is acting as chairman of the Rubber Committee of the Emergency Unemployment Relief Committee. He has enlisted the aid of the Rubber Exchange of New York in making an appeal to the crude rubber trade in the city.

"It is our hope," Mr. Viles states in a general letter to rubber men in the New York area, "that the rubber industry with offices or establishments in Greater New York can do its full share toward contributing through corporation, as well as individual subscriptions, to the Emergency Relief Fund." It is the intention of this group to raise at least $12,000,000 to provide jobs and relief for the needy unemployed of New York City.

### Shows Rubber Trade Gaining

The annual trade survey of the National Association of Manufacturers, based on replies to questionnaires sent out October 15 to its members, was made public on October 30. Among the industries reporting the largest improvements in trade over 1930 were rubber, 25 per cent; chemicals, 11 per cent; and automobile accessories, 14 per cent.

### 78,985 Rubber Workers in Ohio

Ohio, during 1929, employed nearly one-half of the nation's rubber industry wage earners and salaried employes, according to census figures released last month. The statistics show 149,148 rubber workers and 22,834 salaried officers and employes in the United States at the end of 1929. For Ohio the total was 78,985, divided as follows: tire and tube wage earners, 55,307; tire and tube salaried employes and officers, 7,900; all other rubber goods wage earners, 6,707; all other rubber goods salaried employes, 9,071.

### Grasselli Erects Laboratory

The Grasselli Chemical Company, Cleveland, O., has awarded the contract for the construction of a three-story laboratory to the Lundoff-Bicknell Company of the same city. The structure will be 31 by 54 feet in size and will cost approximately $60,000.

### Panco to Build Warehouse

The Panco Rubber Company, Chelsea, Mass., will shortly award the contract for the erection of a two-story storage building at Highland Avenue and Congress Street in that city. The structure will cost approximately $40,000. S. Schein of Boston is the architect.

### Falls Tire Sales Increase

Sales of tires by the Falls Rubber Company, Cuyahoga Falls, O., subsidiary of the Master Tire & Rubber Corporation, have shown steady increases every month this year according to F. C. Millhoff, vice-president. February sales were up 117 per cent compared to January; March, 212 per cent higher; April, 278 per cent over January; August, 436 per cent—or more than four times greater than for the first month of the year. Unit production shows a gain of 342 per cent over January, and factory output has been near capacity for four full days' time each week. The company produced more than 61,000 tires in July as against 13,000 in January.

## NEW OFFICERS NAMED BY RUBBER SECTION, N. S. C.

C. L. Hungerford, of the Firestone Tire & Rubber Company, Akron, O., was elected general chairman of the Rubber Section, National Safety Council, at the annual congress held last month at Chicago, Ill. Mr. Hungerford, who was named vice-chairman last year, has been acting as general chairman since last May, when E. R. Lawler resigned following the closing down of the Woonsocket Rubber Company, Woonsocket, R. I., with which he was connected.

J. R. Hanson, of the United States Rubber Company, Passaic, N. J., was chosen as vice-chairman in charge of program, and H. W. Low, of the Miller Rubber Company, Akron, O., was selected as secretary. Members at large chosen for the executive committee for the ensuing year were E. W. Beck, United States Rubber Company, Passaic, N. J.; J. T. Kidney, Goodyear Tire & Rubber Company, Akron, O.; and W. L. Schneider, B. F. Goodrich Company, Akron, O. The editor of the News Letter for the year will be Charles F. Smith, of the U. S. Rubber Reclaiming Company, Buffalo, N. Y.

Committee chairmen for the year will be the following: poster, R. A. Bullock, Corduroy Rubber Company, Grand Rapids, Mich.; membership, A. M. Dietz, Pennsylvania Rubber Company, Jeannette, Pa.; publicity, M. A. Quirk, United States Rubber Company, Detroit, Mich.; statistics, Roland Kastell, United States Rubber Company, Passaic, N. J.; engineering, M. M. Kilgore, Goodyear Tire & Rubber Company, Akron, O.; health, Dr. J. Newton Shirley, Hood Rubber Company, Watertown, Mass.; slides and safety kinks, B. F. Gerpheide, Goodyear Tire & Rubber Company, Akron, O.

### Blimp Aloft 32 Hours

The blimp Columbia of the Goodyear Tire & Rubber Company ended a forced endurance flight of thirty-one and three-quarters hours on October 26 when it was safely berthed in its hangar at Holmes Airport, New York City. The ship had gone up for a short test cruise, but high winds made it impossible to manoeuver the craft back to its dock, although a ground crew of 20 men was able to hold it down briefly at four-hour intervals for refueling and a change of pilots. On a previous occasion two years ago it took thirty-one hours to berth the Defender in a gale at Miami, Fla.

**Need experienced help? See page 131.**

## TIRE BUILDERS SHOWN TO COME FROM SOUTH

Where tire builders come from is indicated by a tabulation of the 128 candidates for employe representatives in the annual shop elections at the Goodyear Tire & Rubber plant at Akron, O. This shows that 40, or nearly one-third, were born south of the Mason and Dixon line.

The movement of young men from the farm into the industrial centers is a social phenomenon long since noted by observers, and while the small towns of Ohio have furnished nearly one-third of the men in the group, it is significant that another third represents the migration from south to north.

West Virginia furnishes the largest number with 19, exceeding all other states except Ohio and even leading the nearby state of Pennsylvania, while Tennessee and Alabama are well represented, every southern state except South Carolina and Florida having one or more men on the list.

Of the 128 men, only nine are foreign born, England furnishing four, Scotland, Ireland, and Canada one each. The foreign element in the rubber industry in Akron has always been smaller than in other industries.

## F. H. Mason Estate at $984,379

The estate of Frank H. Mason, director of the B. F. Goodrich Company, who died July 10, inventoried $984,379, according to the report of appraisers filed in court October 22. His will showed a large number of bequests to charity as well as to relatives. Mr. Mason was formerly vice-president and vice-chairman of the Goodrich company.

## GOODRICH SHIFTS ITS SUBSIDIARY MANAGERS

Changes in the subsidiary sales organizations of the B. F. Goodrich Company, effective October 15, were announced recently by H. E. Keller, manager of the subsidiary tire division.

Territorial organization follows: V. C. Criswell, manager eastern division; C. L. Campbell, manager central division; C. E. Carroll, manager western division, and K. K. Kantzer, manager Pacific Coast division.

Akron office reorganizations include: E. P. Weckesser, special tire and tube accounts; A. L. Bowman, truck and bus tires; E. A. Schneider, Miller and private brand accessories, and C. W. Landefeld, operating, clerical and statistical.

The changes affect the Miller, Hood, Diamond, Brunswick and Defiance tire divisions.

## Firestone Completes Inventory

All production departments of the Firestone Tire & Rubber Company were closed between October 25 and November 1 to permit the annual inventory to be taken. The average factory employe lost four days of work during the period.

The H. A. Husted Co. was incorrectly termed an American Hard Rubber Co. subsidiary in the Oct. 25 issue. It is not a subsidiary of American Hard Rubber.

## *Don M. Bregenzer*

Don M. Bregenzer, former member of the advertising staff of the Firestone Tire & Rubber Company, died October 29 at his home in Cleveland, O., after a long illness. After leaving Firestone, Mr. Bregenzer joined the Richardson-Briggs Company, Cleveland advertising agency, from which he resigned shortly before the beginning of his last illness.

## *Wallace H. Campbell*

Wallace Henry Campbell, engineer in the machine design department of the Goodyear Tire & Rubber Company, died of a heart attack October 24 while returning by automobile from the Ohio State-Northwestern football game. With him in the car were M. Lammertsz, C. E. Gardiner and T. J. Allan, all employes of the Goodyear design department.

Mr. Campbell was a graduate of Ohio State University in the class of 1916 and immediately after his graduation entered the employ of the Goodyear Tire & Rubber Company. He is survived by his widow and three sons, his mother and a brother.

## Michigan Chemical Agency

Michigan Chemicals, Inc., has been organized at Grand Rapids, Mich., with a capital stock of $50,000 to develop and manufacture chemicals and chemical compounds. The company will also act as Michigan distributor for the Grasselli Chemical Company and the Harshaw Chemical Company. J. C. Miller is president and treasurer of the firm.

## Du Pont Earns $41,412,943

E. I. du Pont de Nemours & Company report for the nine months ended September 30, 1931, consolidated net income of $41,412,943 after interest, taxes, etc., equal to $3.34 a share on 11,035,263 average number of common shares outstanding during the period. This compares with $45,984,659, or $3.88 a share on 10,700,970 average shares in the first nine months of 1930. Profit from operations, exclusive of income from investment in General Motors and other companies, was $17,444,168 as against $19,540,038 in the first three quarters of last year.

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## MONSANTO WORKS PROFIT HIGHER THAN LAST YEAR

The Monsanto Chemical Works, including the Rubber Service Laboratories Company and other subsidiaries, reports for the quarter ended September 30, 1931, consolidated net profit of $361,720 after charges and federal taxes, equivalent to 84 cents a share on 429,000 no-par shares of stock. This compares with $416,076 or 97 cents a share on 429,000 shares in preceding quarter and $173,515 or 41 cents a share on 416,449 shares in third quarter of 1930.

Consolidated net profit for nine months ended September 30, 1931, was $1,033,174 after charges and taxes, equal to $2.40 a share on 429,000 shares, comparing with $795,912 or $1.91 a share on 416,449 shares in first nine months of previous year.

Business of Monsanto has been showing substantial improvement since early in the year, as compared with the same period last year. The explanation lies chiefly in the large sums spent by the company in recent years in research, development and consolidations, benefits from which have been witnessed in lower production costs and the addition of several new products to the company's lines, some of which have never been produced in this country before, and only in small quantities abroad.

## Cabot Declares Dividend

Godfrey L. Cabot, Inc., Boston, Mass., supplier of carbon black, has declared an initial dividend of $10 a share, payable October 31 to stockholders of record October 15. The company was incorporated in 1922 and in previous years has employed earnings in expanding its properties and operations.

## Rubber Stocks Are Firmer

Goodyear common rallied slightly during the fortnight, but Firestone, Goodrich and United States closed at the same figure as two weeks ago. Seven new lows were made.

Closing prices of the stock issues of the principal companies in the industry on November 4, compared with the close on October 19 and with the high and low thus far reached in 1931, are shown in the following table:

| | Last Price | | —1931— | |
|---|---|---|---|---|
| | Nov. 4 | Oct. 19 | High | Low |
| Aetna | — | — | 5 | 2 |
| Ajax | — | — | ½ | ¼ |
| American Hard Rubber | — | — | 35¼ | 30 |
| Dayton "A" | — | — | — | — |
| Faultless | — | 29 | 37 | 29 |
| Firestone | 14¾ | 14¾ | 21½ | 13 |
| do. 6% pfd. | 53 | — | 66¼ | 50¼ |
| Fisk | ⅜ | ¼ | ⅞ | ¼ |
| do. 1st pfd. | ½ | — | 3 | ½ |
| General | — | — | 140 | 50 |
| do. pfd. | — | — | 87½ | 75 |
| Goodrich | 6⅜ | 6⅜ | 20⅞ | 5 |
| do. pfd. | — | — | 68 | 16 |
| Goodyear | 26 | 24¼ | 52⅝ | 16 |
| do. 1st pfd. | — | — | 91 | 58 |
| India | 10 | 8½ | 13½ | 6 |
| Intercontinental | — | — | 4½ | ¼ |
| Kelly-Springfield | 1⅜ | 1⅛ | 3½ | ¾ |
| do. 6% pfd. | — | — | 45 | 35 |
| Lee | 2 | 2 | 4¾ | 1⅞ |
| Mohawk | — | — | 8 | 1¾ |
| do. pfd. | — | — | 35 | 25 |
| Norwalk | 1 | — | 1½ | ½ |
| Pirelli | — | 29 | 39¾ | 26½ |
| Raybestos-Manhattan | — | 12½ | 29½ | 9½ |
| Seiberling | 5 | — | 10¾ | 4⅛ |
| do. pfd. | — | — | 50 | 32 |
| U. S. Rubber | 7¼ | 7¼ | 20⅝ | 5½ |
| do. pfd. | 12 | — | 36⅛ | 9⅝ |

## AKRON IS COMMISSIONED IN NAVY DAY CEREMONY

The dirigible Akron, largest craft of the air, was commissioned as a ship of the United States Navy at ceremonies at the Naval Air Station, Lakehurst, N. J., on Navy Day, October 27. Paul W. Litchfield, president of the Goodyear Tire & Rubber Company and the Goodyear-Zeppelin Corporation, was one of the principal speakers for the occasion.

The ship is taken over by the Navy under the usual provisional acceptance, which allows a six-month trial period. It was announced that propellers of different pitch will be installed to give more speed, and it is expected that this work will be completed by December.

The acceptance of the Akron automatically authorizes the beginning of construction on its sister ship, now known only as the ZRS-5, for which Congress has already appropriated $1,100,000. The total cost of the new ship will be $2,450,000, while the Akron's contract price was $5,375,000, and it is scheduled for delivery at the end of 1932.

### U. S. Uses Record Ad

The United States Rubber Company used an advertisement of 14 color pages in the October 17 issue of the *Boot and Shoe Recorder* to announce the reception given its new line of Gaytees. The advertisement, which was one of the largest ever used in connection with this type of footwear, featured the fact that 8,984 retailers have signified their endorsement of the new line and carried photographs and appreciative letters of several of these distributors.

### New Plant Rubber Officers

The Plant Rubber & Asbestos Works, San Francisco, Cal., recently elected new officers and managers. The new officials include R. H. Shainwald, president; Charles A. Wright, vice-president; C. C. Gibson, secretary and treasurer; E. O. Spencer, assistant secretary; R. H. Chase sales manager; S. J. Gillis, waterfront manager; B. L. Hons, contract manager; and J. E. Kennedy, engineer.

### Industrial Trucks at Goodrich

A fleet of industrial trucks used in interplant transportation by the B. F. Goodrich Company last year moved 4,020,000,000 pounds of material, according to statistics compiled by J. W. Gauthier, transportation superintendent. The mechanical haulers covered 538,741 miles without leaving the Goodrich factories, each unit averaging more than 7,000 miles, to fulfill 1,608,000 different transportation orders.

### Joins Waste Dealers' Group

The Pollack Brothers Scrap Rubber Corporation, 228 Newport Street, Brooklyn, N. Y., has become a member of the National Association of Waste Material Dealers. Through its representatives, it will take part in the activities of the Scrap Rubber Division of the association.

# New Rubber Goods

### Rubber Attachment Cap

A new, unbreakable attachment cap with hand grip is announced by Cutler-Hammer, Inc., 325 North 12th Street, Milwaukee, Wis. It is made of soft, resilient rubber with the blades fastened to a bakelite disc imbedded in the rubber base. The hand grip is narrow and slim, approximately 1¾ inches long, and has an artistic design molded into the rubber.

It is claimed the resiliency provided by the rubber handle will act as a strain relief protection to the cord, as well as to protect the cord from breaking directly at the cord hole. In addition to being unbreakable, the manufacturer states the soft rubber construction will prevent scratching or marring floors, furniture, etc.

The purpose of the artistic design is to make it attractive for home use and for various electrical appliances, such as vacuum cleaners, cord sets, lamps, etc. The unbreakable rubber construction, it was felt, would be of interest for industrial applications as well as for home use.

Rated at 15 amp. 125 volts, 10 amp. 250 volts, is known as the Cat. 7761, and is available with cord openings for 11/32 and 13/32 inch cords.

### Krinkle Dot Balloon

A fancifully decorated balloon has been added to the line of the Oak Rubber Company, Ravenna, O., under the name of the Krinkle Dot. There are six of the Krinkle

Dot stripes on each balloon, making it a very striking and handsome number. The stripes are printed in two or three colors, creating an interesting contrast. It is offered in two popular sizes, the larger of which inflates to a diameter of eleven inches and the smaller to a diameter of ten inches.

### India Adds Battery Line

The India Tire & Rubber Company, Mogadore, O., has added a complete line of India storage batteries for automobiles to its line of tires, tubes and accessories. The India battery will be backed by a special guarantee.

### Lastex-Knit "Sensation" Corset

Kops Brothers, Inc., 120 East 16th Street, New York City, has added to its line of Nemo-Flex foundation garments an entirely new six-ounce corset under the name of the "Sensation." It is knitted of Lastex, a rubber yarn developed by the United States Rubber Company through a process similar to that used for rayon. Liquid latex is forced through minute holes in a nozzle, emerging as hairlike filaments of a much

finer size than has ever been available in cut rubber. This fine rubber yarn is knitted with Durene cotton yarn in a special construction developed by the Paulastic Company and called "Supple-Spun." The unique feature of this fabric is that it has a two-way stretch—around the body and lengthwise on the body. However, the stretch around the body is of sufficient tension to exercise adequate figure control. Because of the lengthwise stretch, this garment fits to every figure height, prevents shoulder straps cutting in, does not allow of riding up or losing position on the body and makes back garters unnecessary. Other features are cupped bust pockets of fine knitted mesh and silk ribbon shoulder straps. It is a slip-on combination and has no closing whatever.

### Scrap Rubber Freight Rate

Trunk Line Association Proposal No. 27,-725 proposes to establish a reduced rate of 7½ cents per 100 pounds on scrap rubber, carloads, from Binghamton, N. Y., to Johnson City, N. Y.

# Names in the News

T. G. GRAHAM, vice-president of the B. F. Goodrich Company, will be a speaker at the second meeting of the Shop Methods Division of the American Management Association at Dayton, O., on January 21. He will present a paper on "The Contributions of the Shop Methods Man to Long Term Planning."

ALBERTO PIRELLI, general manager of the Pirelli Company of Italy, Milan, Italy, leading Italian rubber manufacturer, was the author of a review of current trends in American-European commerce in the October issue of the *Executives Service Bulletin*.

C. S. DICKEY, until recently vice-president and general manager of the Corduroy Rubber Company, Grand Rapids, Mich., has become manager of the special brand department of the Mansfield Tire & Rubber Company, Mansfield, O.

M. L. HAVEY, general sales manager of the New Jersey Zinc Company, has been elected president of the American Society of Sales Executives.

G. W. STEPHENS and J. S. WAINWRIGHT, of the Mansfield Tire & Rubber Company, Mansfield, O., attended the joint convention of the National Hardware Association of the United States and the American Hardware Manufacturers Association at the New Palmer House, Chicago, Ill., from October 19 to 22.

C. H. RUSSELL, of the national accounts division of the B. F. Goodrich Company, attended the sessions of the American Railway Association at Chicago, Ill., on October 27 and 28.

H. E. SIMMONS, professor of chemistry at Akron University, spoke on "The Contribution of Chemistry to the Rubber Industry" at the convention of the Northeastern Ohio Teachers' Association at Cleveland, O., on October 31. Professor Simmons is secretary-treasurer of the Rubber Division of the American Chemical Society.

CARL JONES has been advanced to the position of sales promotion manager of the Dayton Rubber Manufacturing Company, Dayton, O. He has been associated with Dayton for a number of years and previously spent several years in sales promotion work with various firms. TED HARDY, former manager of sales promotion for the company, will be assigned to a new post as a district manager.

DR. HUGO ECKENER, commander of the Graf Zeppelin, returned to Akron on October 24 to confer with P. W. LITCHFIELD, president of the Goodyear Tire & Rubber Company and Goodyear-Zeppelin Corporation. Dr. Eckener stated that the new German dirigible, the RZ-128, which will be larger than the Akron, will be completed in the spring in 1933 and will make regular flights between the American east coast and a German base.

ROBERT TAFEL, of the International B. F. Goodrich Company, sailed late last month for San Juan, Porto Rico, to become resident representative for Goodrich products in the West Indies. Mr. Tafel, who has lived in Porto Rico 17 years and in the United States 15 years, came to Akron in 1925 with the Miller Rubber Company.

L. W. ERICKSON has been appointed by the Foote Bros. Gear & Machine Company as district representative on IXL gears and speed reducers for the Milwaukee and Wisconsin territory.

A. C. KRUGER, formerly in charge of latex developments for the Firestone Footwear Company, Hudson, Mass., has joined the technical staff of the Heveatex Corporation, Malden, Mass.

ALFRED E. FICKES has been appointed sales manager of the Biggs Boiler Works Company, Akron, O.

E. Y. BURKHALTER has been named by the Kalbfleisch Corporation as sales manager of its rosin division with headquarters at New York City.

SIR HUGH TRENCHARD, director of the Goodyear Tire & Rubber Company and its British subsidiary, arrived in Akron on October 18 for a three-day visit. He attended the meeting of Goodyear directors on October 19 and was a guest at the home of MR. AND MRS. PAUL W. LITCHFIELD during his stay.

M. N. TWYMAN, manager of the cotton and textile purchasing division of the B. F. Goodrich Company, left Akron on October 15 on his regular fall trip through the cotton belt. Accompanied by C. G. THOMPSON, of Martha Mills, Inc., he will cover eight states and make contact with numerous growers and shippers in connection with the company's cotton requirements.

CHARLES H. BAUER has been appointed as general sales manager of the L. H. Gilmer Company, Philadelphia, Pa. He was for the past six years manager of the automotive division of the company.

WILLIAM F. YOUNG, secretary of the National Air Race contest committee for the past four years, has joined the B. F. Goodrich Company to take charge of aviation sales activities on the west coast. He will have headquarters at the Pacific Goodrich Rubber Company, Los Angeles, Cal.

DWIGHT W. FILKINS, former purchasing agent of the Ferbert-Schorndorfer Company, Cleveland, O., has joined White & Company, suppliers of materials to the rubber industry. He will act as manager of the firm's Cleveland office at Broadway and East 15th street in that city. R. W. SANFORD, well known chemist, will have charge of the sales of carbon black for White & Company in its northern Ohio territory. White & Company are agents for the Imperial Oil & Gas Products Company, of Pittsburgh, Pa., and Louisiana. Mr. Sanford will have his headquarters in the company's office, 809 Akron Savings & Loan Company Building, Akron, O. He will take up the duties of his new position at once.

C. L. REELEY has joined the sales promotion department of the Mansfield Tire & Rubber Company, Mansfield, O. He was for a number of years associated with the Sweeney & James Company, Cleveland, O.

C. S. CHING, manager of industrial and public relations of the United States Rubber Company, spoke last month before the engineering division of the Detroit Industrial Safety Council. His subject was plant accidents and their prevention.

V. I. MONTENYOHL, treasurer of the B. F. Goodrich Company and executive vice-president of the International B. F. Goodrich Company, returned to Akron, October 28 after a two-month trip abroad.

E. E. HELM, of the General Tire & Rubber Company, has been appointed by the Akron Chamber of Commerce as a member of a committee to plan the organization of a convention bureau to bring more state and national conventions to Akron.

G. L. MATTHIAS, mechanical goods division manager of the B. F. Goodrich Company, is recovering from a torn ligament suffered in a slight accident in an Akron gymnasium last month.

ARTHUR F. NOYES, of the contract department of the B. F. Goodrich Company, has been transferred to the bus and truck tire department as sales engineer. Mr. Noyes has been with the Goodrich company for seven years, working in technical capacities.

R. B. TRACY, formerly middle western manager for the Michelin Tire Company, has joined the Woodworth Specialty Company, makers of tire chains and mud hooks, at Buffalo, N. Y., in the capacity of sales manager.

K. H. SCHMIDT has been appointed manager of the accounting department of the B. F. Goodrich Company. He has been a member of that department for some time.

# Current Crude Rubber Items

## OFFICERS ARE ELECTED BY RUBBER EXCHANGE

John L. Julian, member of the firm of Fenner & Beane, was re-elected president of the Rubber Exchange of New York, Inc., on October 19, at the annual election of that organization, held in the exchange rooms, 31 South William Street, New York. Mr. Julian, who begins his second term of one year as president, succeeded Francis R. Henderson in that office last year.

William A. Overton, with Geo. H. McFadden & Bro., was elected vice-president by the membership to succeed himself, while J. Chester Cuppia, of E. A. Pierce & Company, was returned to the office of treasurer, a position he has held for several years.

The following Board of Governors of the exchange was elected to serve for the coming year: Robert Badenhop, of the R. Badenhop Corporation; Frank D. Pressinger, crude rubber broker; Marcus Rothschild, of M. Rothschild & Company, Inc.; Samuel Swerling, of Swerling Trading Corporation; Harry A. Astlett, of H. A. Astlett & Company; Harold L. Bache, of J. S. Bache & Company; William E. Bruyn, of Littlejohn & Co., Inc.; James T. Bryan, of Logan & Bryan; Fred Pusinelli, of Pusinelli & Poel, Inc.; Charles Slaughter, of Slaughter, Horne & Company; Charles T. Wilson, of C. T. Wilson Company, Inc.; and Edward J. Wade, of Wade Bros. & Company.

Inspectors of election for 1932 will be LeRoy Wood, Nelson S. Robinson and Benjamin B. Millenthal.

## 615 COMPANIES SHOW HIGHER OUTPUT IN 1931

A group of 615 producing companies reporting to the Rubber Growers' Association show a production for the first nine months of 1931 of 192,766 tons as against 190,270 tons for the first three quarters of 1930. September output of this group totaled 21,664 tons as compared to 21,921 tons in August. Those companies in Malaya and the Dutch East Indies show higher outputs than last year, while those in Ceylon, British North Borneo, India and Burma reveal reductions.

Another comparison made by the Commercial Research Department of the Rubber Growers' Association shows that 244 companies increased their output in September as against September, 1929, while 297 companies reduced their production.

### New Russian Rubber Plants

A botanical expedition of the Academy of Science has discovered a number of new rubber-bearing plants and others containing volatile oils, according to recent dispatches from Moscow. These plants were found in the Altai Mountains, near the city of Ust-Kamenogorsk.

### Dutch Indies Shipments Lower

Crude rubber shipments by the Dutch East Indies during September amounted to 21,667 tons which, compared with August shipments which amounted to 22,437 tons, reveals a decrease of 770 tons.

Java, Madura, Borneo and Celebes shipped less by 1,542 tons, which decrease was partially offset by increased shipments from Sumatra amounting to 772 tons. During the month of September, 1930, the Dutch East Indies shipped 20,240 tons.

### Charles E. Wood Returns

Manufacturers of rubber goods throughout Europe report marked improvement in business and look for continued gains, according to a statement made by Charles E. Wood, October 19, after his return from an extended trip abroad. Mr. Wood, who is president of Charles E. Wood, Inc., crude rubber importers, was optimistic over the prospect of restriction of crude rubber production and consequent improvement in prices. Plantation owners, with whom he discussed the matter in London, Amsterdam, Rotterdam and Antwerp, favored restriction, he said.

### Freight Rates Reduced

The steamer Siljestad, chartered by the Barbour Steamship Company, was scheduled to sail from Singapore about November 5 with a cargo of 6,500 tons made up exclusively of crude rubber. The freight rate for rubber was materially reduced for this boat, and the cut in rates was met by the other members of the shipping conference with the announced intention of returning to the old rates 24 hours after the sailing of the Siljestad. Exports are reported to have jumped sharply to take advantage of the temporarily lowered rates.

## PRICE DIFFERENTIALS ON RUBBER EXCHANGE

The adjustment committee of the Rubber Exchange of New York on October 15 fixed the price differentials between the various grades of Hevea plantation rubber which shall prevail on all deliveries against old "A" contracts for the month of November as follows: off quality first latex crepe at one-tenth of a cent per pound; good F. A. Q. ribbed smoked sheets at two-tenths of a cent per pound; ordinary F. A. Q. ribbed smoked sheets at five one-hundredths of a cent per pound.

The committee on October 27 fixed the differentials for the new "A" contracts in November as follows: No. 2 crepe (thick or thin) at 10 points; No. 2 ribbed smoked sheets at 9 points; No. 3 ribbed smoked sheets at 20 points; No. 4 ribbed smoked sheets at 30 points; No. 5 ribbed smoked sheets at 50 points; limit of allowance on No. 2 crepe at 25 points; allowance for rubber delivered in bales at 13 points.

## FIGURES CORRECTED FOR IMPORTS FROM ENGLAND

The Rubber Division of the Bureau of Foreign and Domestic Commerce on October 3 called attention to discrepancies in official import figures covering rubber brought in from the United Kingdom and official re-export statistics of the British government.

The official United States import statistics show considerable quantities of rubber imported from United Kingdom each month of 1931, also imports have regularly been credited as coming from Netherlands. Examination of British and Dutch official re-export statistics fails to corroborate this indication, and conditions in the trade are not such as to encourage such shipments. Only 729 tons of rubber were recorded in official United Kingdom statistics as exported to this country in the first half of 1931; our import statistics on the other hand show receipts of 9,880 tons from United Kingdom. It is believed this results from faulty import declarations by American importers, who credit England and Netherlands as sources of rubber reaching this country via Suez from Malaya and Netherland East Indies. Agents preparing declarations of imports should be instructed to name the country from which the rubber is imported with especial care in the case of c.i.f. arrivals, which may be purchased from British or Dutch companies just before arrival at American ports, but which was shipped to America from Malaya or Netherland East Indies.

## MALAYAN RUBBER OUTPUT LARGER FOR SEPTEMBER

The Malayan Census report for September showed that rubber production on estates smaller than 100 acres in size totaled 16,593 tons, compared with 15,106 tons during August. The output of estates over 100 acres in size was slightly smaller at 20,240 tons as against 20,941 tons during the previous month.

Estate stocks at the end of the month totaled 22,036 tons against 23,855 tons at the end of August, while an even more substantial shrinkage was shown by dealers' holdings during the month, which amounted to 18,248 tons as against 20,126 tons on August 31.

### Exchange Honors Edison

Thomas A. Edison, whose inventions stimulated the use of rubber and whose researches went far toward providing the United States with a native source of the commodity for times of emergency, received the tribute of the Rubber Exchange of New York on October 21, the day of his burial. Trading was suspended at 2:30 p. m., for one minute in silent respect to the great inventor.

# Rubber News Around the World

## SCHOOLS COOPERATE IN I. R. I. LICENTIATESHIP

The Institution of the Rubber Industry has established a new Licentiateship as part of its general plans for the advancement of technical knowledge and education throughout the British rubber industry. Its object is to encourage young men in the industry or about to enter it to equip themselves by systematic courses at approved institutions, with the award of certificates as a recognition of proficiency. Licentiates may be awarded the Diploma of the Associateship (A.I.R.I.Tech.) upon submission of character references after they have served three years in the industry and have attained the age of 26 years.

Courses leading to the Licentiateship are now offered at the Northern Polytechnic, Holloway, London; Newton Heath Technical School, Manchester, Aston Technical College, Birmingham; Allan Glen Technical School, Glasgow; and Wolverhampton Technical College, Wolverhampton.

### September Golf Ball Imports

Imports of golf balls into the United States during September numbered 69,008, valued at $22,762. This compared with August imports of 38,388 balls, worth $13,301, and with imports in September, 1930, of 197,760 balls, valued at $66,670. The average value per ball of September imports was 33 cents as against 34.6 cents in August and 33.2 cents in July.

### Rubber Institution Programs

The London Section of the Institution of the Rubber Industry will hold a dance on the evening of November 13 at the First Avenue Hotel, High Holborn, London. The Scottish Section will meet November 18 at the Institution of Engineers and Shipbuilders, Glasgow, to hear a paper by A. Hughes on "Labor Wages in Relation to Other Charges."

### C. P. Hall Foreign Agents

Sales of the products of the C. P. Hall Company, Akron, O., are handled abroad by V. A. & V. Fratelli Leone, 22 Corso Vinzaglio, Turin, Italy, as general agents for Europe, and in France by Andre Berjonneau, 33 Boulevard des Batignolles, Paris, and Maison Antoine Baud, 93 Boulevard Lavoisier, Clermont-Ferrand. These products include Stabilite, Stabilite Alba, SPDX, Phenex, Ulto, Retardex, Sponge Paste and Para-Flux.

### Darex Loss Is $56,000

A net loss of Rm. 229,278, or approximately $56,000, was incurred by Darex, A.G., of Frankfort-on-Main, for the past year. The Metallgesellschaft has an interest in this rubber manufacturing company, whose share capital is approximately $125,000.

## SWEDISH RUBBER FIRMS EARN SMALLER PROFITS

Several Swedish rubber manufacturing companies have recently published financial statements for their past fiscal years, the greater number showing considerably reduced earnings. One exception, however, is the Skandinaviska Gummi, A. B., Viskafors, maker of footwear, mats, gloves and mechanical goods, which reports its income increased to 256,000 kronas, or about $68,600, as against 203,000 kr. in the previous year.

The Helsingborgs Gummifabriks, A. B., of Helsingborg, manufacturer of footwear, showed a profit of 473,000 kr., or approximately $126,750, as compared to 2,040,000 kr. in the year previous. The Ryska Gummifabriks, A. B., of Malmo, another footwear firm, reported earnings of 293,000 kr., or about $78,500, against 574,000 kr. in the previous year.

## RUBBER-TIRED CARTS IN SWISS POSTAL SERVICE

During the past few years the Swiss Postal Authorities have developed the use of light hand carts built up of steel and light metal with pneumatic tires to replace the old fashioned wooden carts which were heavy and cumbersome. The weight reduction secured by this means has enabled more mail and parcels to be carried per man and in some cases has even enabled horse-drawn vehicles to be replaced by hand carts where the traffic was not very heavy.

The British Aluminum Company, Ltd., has been following these developments carefully and has issued a bulletin containing a report of the technical department of the Swiss Postal Authorities, together with working drawings of these new vehicles. This company believes that this innovation opens up possibilities for similar light metal rubber-tired vehicles in other trades where hand carts are still used for house-to-house delivery.

### Canadian Goodyear Profit

C. H. Carlisle, president and general manager, Goodyear Tire & Rubber Co. of Canada, states in a letter to shareholders that a satisfactory profit was made each month of the quarter ending September 30. He anticipates that the close of the fiscal year on December 31 will find the company's profit as satisfactory as that of a year ago. Mr. Carlisle points out that the Canadian rubber industry as a whole during the first nine months of the year has had a decrease of 24.9 per cent as compared with the same months of 1930.

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PRACTICAL MAN with years of experience in quarter lining for shoe trade, hospital sheeting, calender, mill room, curing and spreader. Will take charge of any or all departments. Unemployed, will accept any position at a living wage. Married. Best of references. Address Box 615.

MECHANICAL ENGINEER, 37, seeks affiliation in either production or engineering department of a rubber manufacturer. Twelve years' experience in executive work in rubber manufacture. Eager to obtain temporary or permanent connection, salary secondary to opportunity. Address Box 618.

SUPERINTENDENT OR ASSISTANT—12 years' experience tires and mechanicals. Rubber technology Akron University. Development, control and production. Can manufacture oil, acid and electric proof rubber substitute. Now in California. Address Box 619.

RUBBER ENGINEER and factory executive is available for an immediate connection. Fully experienced in managing a plant and sales of a medium sized company. Have sales outlet for mechanicals at a profit. Have operated my own plant for the past three years. Address Box 620.

ENGINEER, 28, belting, hose and mechanical rubber experience, also brake lining testing, plant engineering and piping work. Address Box 621.

TIME STUDY ENGINEER with 15 years' experience in the rubber industry, 6 years' installing labor standards, will accept any position and will go anywhere. References furnished. Address Box 622.

FACTORY EXECUTIVE—Thoroughly familiar with the production of canvas and waterproof footwear; 20 years' practical experience in all departments. Dependable and adaptable. Is now available for immediate connection. Moderate salary where good future is offered. Address Box 623.

SALES - PERSONNEL EXECUTIVE; college graduate, 1926; married; has held good positions in planning, time-study, and personnel departments. Experience in footwear and mechanical plants. Wishes position in personnel or sales department. Address Box 624.

CHEMICAL ENGINEER. Experienced in handling and using latex. Over 12 years in development department of one of largest rubber companies. Age 38. Available immediately. Address Box 625.

CHEMICAL ENGINEER, age 28, single. Five years' experience general analytical work; research on rubber chemicals, experimental compounding and testing of all sorts; research, experimental molding and sales service on plastics. Location immaterial. Address Box 614.

## POSITIONS WANTED

SUPERINTENDENT, thoroughly familiar with rubber insulated wire and cable line. Capable of handling constructive development work in any branch of rubber manufacturing industry where thorough knowledge of rubber compounding and equipment is required. Address Box 605.

WANTED, a position as rubber chemist. Have B.S. degree in chemistry; two years' experience on rubber compounding and curing in one of largest rubber footwear companies. Age 24. Would expect salary of $1,800. Good references. Address Box 606.

RUBBER CHEMIST, 3 years' experience in analytical analysis, rubber compounding, research and development work with leading rubber manufacturer, desires employment in laboratory or plant. 27, married, competent, B.S. Yale, 1928. Address Box 607.

FACTORY EXECUTIVE, tires, tubes and mechanical goods. Specification layout, practical compounder, development and processing, supervisory. Complete background, dependable and adaptable. Age 31. Salary commensurate with present business conditions. Address Box 608.

MECHANICAL ENGINEER and factory executive, 42, twenty years' manufacturing experience: production, development, and organization. Specialized in lowering factory costs. Experience in hard and soft rubber goods, bakelite, pottery, automatic machinery, and electrical equipment. Address Box 609.

PURCHASING AGENT or office manager, several years' experience with two of the largest tire manufacturers, available for immediate connection. Moderate salary acceptable when future is offered; satisfactory references. Address Box 610.

PRODUCTION EXECUTIVE and industrial engineer, technical graduate with 12 years' experience and full knowledge in the manufacture of rubber tile and mat flooring, soles and heels, hard rubber products and automotive mechanicals. Competent for any position requiring executive skill and engineering knowledge. Address Box 611.

AGE 28. Seven years' laboratory and plant experience with one of largest manufacturers of wire and conduit. Rubber compounding, extensive research work, plant control and practical knowledge of wire industry. Best references. Address Box 612.

MECHANICAL ENGINEER, ten years' design, development, and construction of rubber working machinery and equipment. Rubber technologist. Two years' industrial engineering, costs, wage incentives, plant layouts. University technical education. Business and management training. Executive ability. Age 35, married. Any location. Address Box 613.

## HELP WANTED

WANTED—Man familiar with every detail of lining barrels with rubber. Must know proper formulae, compounding and methods of application. In reply state age, references, experience and salary expected. Address Box 616, THE RUBBER AGE.

SUPERINTENDENT wanted for Canada, fully experienced in the manufacture of all types of rubber covered wire and cable, extruding machines used. Address Box 617, THE RUBBER AGE.

## MACHINERY FOR SALE

FACTORY REBUILT Slitting and Roll-Winding Machine. CAMACHINE 8 Model 20 for rubber goods manufacturers. Greatly reduced price. Rebuilt practically as good as new. Provides for inserting new liner into rewound rolls, also for removing old liner if required. Address Box 604, THE RUBBER AGE.

## BUSINESS OPPORTUNITY

MANUFACTURER of a mechanical specialty desires one or two additional items (not an article of rubber) to offer to the rubber industry. Will finance and market any article or device of merit. Replies confidential. Address Box 593, THE RUBBER AGE.

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WE PURCHASE surplus and discontinued stocks of Chemicals, Pigments, Accelerators, Solvents and Raw Materials, regardless of quality or condition. Send us a complete list of such dead stocks, whereupon we will make you a cash offer.

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# LATE MARKET PRICES

## RUBBER—COTTONS AND FABRICS—CHEMICALS

**NEW YORK, NOVEMBER 4, 1931**

## Crude Rubber

DURING the month of October the average of the daily closing prices for smoked ribbed sheets at New York was 4.87 cents a pound. This marks a new low and compares with 5.08 cents in September and with 8.20 cents in October, 1930.

Sale of an old "A" contract on the Rubber Exchange on October 28 at a price of 4.20 cents a pound marked a new bottom in the history of the commodity. At the same time and also during recent days sales have been made of actuals on the outside market at 4½ cents a pound.

October shipments from Malaya jumped to 45,911 tons as against 44,336 tons in September, while Ceylon's shipments were 5,102 tons against 4,195 tons in the preceding month. One immediate cause of the sharp drop in price was the report of an official rejection of restriction by the Dutch.

Prices quoted on the New York outside market at the close, November 4, follow:

| | | | |
|---|---|---|---|
| ***Plantations—*** | | | |
| Ribbed Smoked Sheets— | | | |
| Spot-Nov. | — | @ | .04½ |
| December | — | @ | .04½ |
| Jan.-Mar. | .04½ | @ | .04¾ |
| First Latex, crepe spot | .04⅝ | @ | .05 |
| Amber Crepe, No. 2 | .04¼ | @ | .04⅝ |
| Amber Crepe, No. 3 | — | @ | .04¼ |
| Amber Crepe, No. 4 | .04⅛ | @ | .04¼ |
| Brown Crepe, Clean thin | — | @ | .04¼ |
| Brown Crepe, rolled | — | @ | .04¼ |
| Liquid Latex, per gal. | .70 | @ | .80 |
| ***Paras—*** | | | |
| Up-river, fine | — | @ | .05⅝ |
| Up-river, coarse | Nominal | | |
| Acre Bolivian, fine | — | @ | .06 |
| Caucho Ball, Upper | .03 | @ | — |
| ***Centrals—*** | | | |
| Central scrap | .04 | @ | — |
| Esmeraldas | .04 | @ | — |
| ***Balata—*** | | | |
| Block, Ciudad | .18 | @ | .23 |

### LONDON MARKET

| | | | |
|---|---|---|---|
| Standard Ribbed Smoked Sheets—Buyers | | | |
| Spot-Nov. | — | @ | 2⅝d |
| December | 2⅝ | @ | 2⅞d |
| Jan.-Mar. | 2⅞ | @ | 3d |

### SINGAPORE MARKET

| | | | |
|---|---|---|---|
| Standard Ribbed Smoked Sheets—Sellers | | | |
| Spot | — | @ | 2½d |

Daily closing prices and sales on the Rubber Exchange of New York are given in the table below:

## Reclaimed Rubber

Official figures showed that reclaim is still holding its own in relation to domestic crude rubber consumption, although September naturally revealed a sharp decline in the actual quantity used in this country. The average value of the 517 tons of reclaimed rubber exported during September was 4.41 cents a pound as against an average value of 4.39 cents for the 410 tons shipped in August. Late price quotations for the various grades of reclaim were as follows:

| | | | | |
|---|---|---|---|---|
| ***High Tensile*** | | | | |
| Super-Reclaim Black | lb. | .06 | @ | .06¼ |
| High Tensile Red | lb. | .06¼ | @ | .06½ |
| ***Shoe*** | | | | |
| Unwashed | lb. | .05¼ | @ | .05½ |
| Washed | lb. | .06½ | @ | .06¾ |
| ***Tube*** | | | | |
| No. 1 (Floating) | lb. | .07½ | @ | .08 |
| No. 2 (Compounded) | lb. | .06 | @ | .06½ |
| ***Tires*** | | | | |
| Black | lb. | .04¾ | @ | .05¼ |
| Black, selected tires | lb. | .05 | @ | .05¼ |
| Dark Gray | lb. | .06 | @ | .06¼ |
| Light Gray | lb. | .06¼ | @ | .06½ |
| White | lb. | .07½ | @ | .07⅝ |
| Truck, Heavy Gravity | lb. | .06 | @ | .06¼ |
| Truck, Light Gravity | lb. | .06¼ | @ | .06½ |
| ***Miscellaneous*** | | | | |
| Mechanical blends | lb. | .03¾ | @ | .04¼ |

## Scrap Rubber

Price quotations for the different grades of scrap rubber were weaker during the fortnight in sympathy with the drop in the crude commodity. Export business continued high during September with the shipment of 3,781,734 pounds and is now one of the most profitable outlets for the trade. Late prices follow:

**(Prices to Consumer)**

| | | | | |
|---|---|---|---|---|
| Auto tire peelings | ton | 19.00 | @ | 21.00 |
| Mixed auto | ton | 8.00 | @ | 9.50 |
| Bicycle tires | ton | 5.00 | @ | 6.00 |
| Clean solid truck tires | ton | 22.00 | @ | 23.50 |
| Boots and shoes | cwt. | .87½ | @ | 1.00 |
| Arctics, untrimmed | cwt. | .40 | @ | .50 |
| Inner tubes, No. 1 | lb. | .03¼ | @ | .03⅝ |
| Inner tubes, No. 2, compounded | lb. | .01¾ | @ | .02 |
| Inner Tubes, Red | lb. | .01½ | @ | .01¾ |
| Air Brake Hose | ton | 9.00 | @ | 10.00 |
| Rubber Hose | ton | 3.50 | @ | 9.00 |

## Cotton

DURING the month of October the average of the daily closing prices for middling upland cotton at New York was 6.32 cents a pound. This marks a new low level for recent years and compares with 6.52 cents in September and with 10.63 cents in October, 1930.

The sharp upward trend which carried the commodity more than a cent a pound above its lows of October has been temporarily arrested, and current quotations are some 20 points under those of a fortnight ago.

High, low and closing prices on the New York Cotton Exchange on November 4 were as follows:

| | High | Low Nov. 4 | Close | Close Oct. 19 |
|---|---|---|---|---|
| Dec. | 6.54 | 6.40 | 6.48 | 6.68 |
| Mar. | 6.76 | 6.62 | 6.72 | 7.00 |
| May | 6.96 | 6.81 | 6.90 | —— |

## Tire Fabrics

Tire fabric prices remained firm during the fortnight. The latest quotations were as follows:

**(Prices Net at the Mill)**

| | | | | |
|---|---|---|---|---|
| **CORD** | | | | |
| Peeler, carded, 23/4/3 | lb. | .25½ | @ | .26 |
| Peeler, carded, 23/5/3 | lb. | .24½ | @ | .25 |
| Peeler, carded, 13/3/3 | lb. | .22 | @ | .22½ |
| Peeler, carded, 15/3/3 | lb. | .22½ | @ | .23 |
| Egyptian, carded, 23/5/3 | lb. | .35 | @ | .36 |
| Egyptian, combed, 23/5/3 | lb. | .40 | @ | .40½ |
| **CHAFERS** | | | | |
| Carded, American, 8 oz. | lb. | .23 | @ | .23½ |
| Carded, American, 10 oz. | lb. | .23 | @ | .23½ |
| Carded, American, 12 oz. | lb. | .22½ | @ | .23 |
| Carded, American, 14 oz. | lb. | .20½ | @ | .21 |
| **LENO BREAKER** | | | | |
| Carded, American, 8¼ oz. | lb. | .20 | @ | .25 |
| Carded, American, 10¼ oz. | lb. | .20 | @ | .25 |
| **SQUARE WOVEN** | | | | |
| Carded, American, 17¼ oz. 23-11 ply | lb. | .24½ | @ | .25 |
| Carded, American, 17¼ oz. 10-ply | lb. | .20½ | @ | .21 |

## Sheetings

Sheetings continued to remain stable, except for a fractional weakening in the case of one or two sizes. Late prices were quoted as follows:

| | | | | |
|---|---|---|---|---|
| 40-inch, 2.50-yard | yd. | — | @ | .05¾ |
| 40-inch, 2.85-yard | yd. | .05⅛ | @ | .05¼ |
| 40-inch, 3.15-yard | yd. | — | @ | .06 |
| 40-inch, 3.60-yard | yd. | — | @ | .05 |
| 40-inch, 3.75-yard | yd. | — | @ | .04½ |
| 40-inch, 4.25-yard | yd. | — | @ | .04 |

## Ducks

Hose and belting ducks weakened again during the fortnight and closed a cent lower in price. Current quotations follow:

| | | | | |
|---|---|---|---|---|
| Belting and Hose | lb. | — | @ | .20 |
| Enameling | lb. | .20½ | @ | .21½ |
| Single filling | lb. | .08½ | @ | .08¾ |
| Double filling | lb. | .09½ | @ | .09¾ |

## *Closing Prices on Rubber Exchange of New York, Inc.*

FROM OCTOBER 20 TO NOVEMBER 4, 1931

| | | Spot | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Sales |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. 1 Standard Contract of 10 Tons | | | | | | | | | | | | | |
| Oct. | 20 | 5.25 | 5.25 | 5.28 | 5.34 | 5.40 | 5.45 | 5.52 | 5.59 | 5.66 | 5.74 | 5.80 | 5.87 | —— | 98 |
| | 21 | 5.12 | 5.11 | 5.15 | 5.22 | 5.29 | 5.36 | 5.43 | 5.51 | 5.56 | 5.62 | 5.70 | 5.78 | —— | 66 |
| | 22 | 5.05 | 5.00 | 5.00 | 5.06 | 5.12 | 5.17 | 5.23 | 5.29 | 5.36 | 5.43 | 5.51 | 5.60 | —— | 54 |
| | 23 | 4.96 | 4.94 | 4.96 | 5.02 | 5.08 | 5.15 | 5.20 | 5.26 | 5.33 | 5.41 | 5.49 | 5.57 | —— | 33 |
| | 24 | 4.75 | 4.72 | 4.75 | 4.82 | 4.89 | 4.97 | 5.05 | 5.13 | 5.17 | 5.22 | 5.28 | 5.35 | —— | 30 |
| | 26 | 4.55 | 4.54 | 4.58 | 4.64 | 4.70 | 4.75 | 4.82 | 4.90 | 4.98 | 5.06 | 5.12 | 5.19 | —— | 80 |
| | 27 | 4.54 | 4.51 | 4.54 | 4.60 | 4.66 | 4.72 | 4.80 | 4.89 | 4.95 | 5.02 | 5.09 | 5.17 | —— | 79 |
| | 28 | 4.46 | 4.43 | 4.46 | 4.52 | 4.58 | 4.65 | 4.71 | 4.77 | 4.85 | 4.93 | 4.99 | 5.06 | —— | 103 |
| | 29 | 4.52 | 4.50 | 4.54 | 4.60 | 4.66 | 4.72 | 4.77 | 4.83 | 4.90 | 4.97 | 5.04 | 5.12 | —— | 53 |
| | 30 | 4.50 | 4.44 | 4.48 | 4.55 | 4.62 | 4.68 | 4.74 | 4.81 | 4.88 | 4.95 | 5.02 | 5.09 | —— | 65 |
| | 31 | 4.55 | 4.54 | 4.58 | 4.64 | 4.70 | 4.77 | 4.83 | 4.89 | 4.94 | 5.00 | 5.07 | 5.15 | —— | 7 |
| Nov. | 2 | 4.45 | 4.42 | 4.45 | 4.50 | 4.56 | 4.62 | 4.68 | 4.75 | 4.82 | 4.90 | 4.97 | 5.05 | 5.15 | 34 |
| | 4 | 4.45 | 4.43 | 4.46 | 4.52 | 4.58 | 4.64 | 4.71 | 4.78 | 4.86 | 4.94 | 5.00 | 5.06 | 5.16 | 43 |

# CHEMICALS

FACTORY activity was still further curtailed during October by the closing of many plants for annual inventory taking. This, of course, lessened the demand for rubber chemicals and compounding ingredients last month. The surprisingly low rate of production in the tire industry was responsible for a slackening in sales and consumption of carbon black, but it is felt that present low stocks of tires must be augmented in the near future or efficient distribution will be imperiled.

## ACCELERATORS

| | | | |
|---|---|---|---|
| **Organic** | | | |
| A-1 | lb. | .24 @ | .27 |
| A-5-10 | lb. | .33 @ | .36 |
| A-7 | lb. | .55 @ | .59 |
| A-11 | lb. | .62 @ | .66 |
| A-16 | lb. | .57 @ | .61 |
| A-19 | lb. | .58 @ | .62 |
| A-20 | lb. | .64 @ | .68 |
| A-32 | lb. | .80 @ | .95 |
| Aldehyde ammonia, crystals | lb. | .65 @ | .70 |
| Altax | lb. | | |
| Aniline oil, drums, f.o.b. works | lb. | .14½@ | .16 |
| Captax | lb | | |
| Cryiene | lb. | .55 @ | .65 |
| paste | lb. | .45 @ | .55 |
| Di-Ortho-Tolyguanidine | lb. | .42 @ | .44½ |
| Diphenylguanidine | lb. | .30 @ | .32½ |
| Ethylidene aniline | lb. | .45 @ | .47½ |
| Formaldehyde aniline | lb. | .37½@ | .40 |
| Heptene | lb. | .40 @ | — |
| Hexamethylene-tetramine | lb. | .58½@ | .61 |
| Lithex | lb. | .18 @ | .20 |
| Methylenedianiline | lb. | .37½@ | .40 |
| Monex | lb. | 3.25 @ | -- |
| Oxynone | lb. | .68 @ | .80 |
| Phenex | lb. | .75 @ | — |
| Pipsol | lb. | 4.30 @ | 4.50 |
| R & H 40 | lb. | .40 @ | .41 |
| R & H 50 | lb. | .40 @ | .41 |
| R & H 397 | lb. | .75 @ | .76 |
| R-2 | lb. | 1.95 @ | 2.15 |
| Safex | lb. | 1.20 @ | 1.25 |
| SPDX | lb. | .75 @ | — |
| Super-Sulphur No. 1 | lb. | | |
| No. 2 | lb. | | |
| Tensilac, No. 39 | lb. | .40 @ | .42½ |
| Tensilac, No. 41 | lb. | .50 @ | .52½ |
| Thermio F | lb. | .50 @ | .55 |
| Thiocarbanilid, drums | lb. | .20 @ | .22 |
| TMTT | lb. | 3.00 @ | 3.25 |
| Trimene | lb. | .75 @ | — |
| base | lb. | 1.20 @ | — |
| Triphenylguanidine | lb. | .58 @ | .60 |
| Tuads | lb. | | |
| Ureka | lb. | .75 @ | 1.00 |
| Vulcanex | lb. | | |
| Vulcone | lb. | | |
| Vulcanol | lb. | | |
| Z-88-P | lb. | .50 @ | .60 |
| Zimate | lb. | | |
| **Inorganic** | | | |
| Lead, sublimed blue | lb. | .08¼@ | — |
| Lead, white | lb. | .08½@ | .08¾ |
| Litharge, domestic | lb. | .07¾@ | — |
| Magnesia, calcined, light | per 100 lb. | 5.35 @ | 5.45 |
| heavy | per 100 lb. | 3.65 @ | 3.75 |

## COLORS

| | | | |
|---|---|---|---|
| Blacks (See Compounding Materials) | | | |
| Blues | | | |
| Prussian | lb. | .35 @ | .36 |
| Ultramarine | lb. | .06 @ | .32 |
| Browns | | | |
| Sienna, Italian | lb. | .05½@ | .12½ |
| Umber, Turkey | lb. | .04½@ | .07 |
| Greens | | | |
| Chrome, light | lb. | .30 @ | .32 |
| medium | lb. | .31 @ | .33 |
| dark | lb. | .34 @ | .36 |
| Chromium Oxide, bbl. | lb. | .34½@ | .35½ |
| Reds | | | |
| Antimony crimson, 15/17 | lb. | .40 @ | .44 |
| sulfur, free | lb. | .56 @ | .66 |
| golden, 15/17 F.S. | lb. | .20 @ | .25 |
| Indian English | lb. | .08 @ | .11 |
| Domestic (Maroon) | lb. | .11 @ | — |
| Oximony | lb. | .13¼@ | — |
| Red oxide, pure | lb. | .10 @ | .12 |
| Smith's 444 Crimson f.o.b. Springfield | lb. | .08¾@ | .10 |
| Rub-Er-Red, f.o.b. Easton | lb. | .08¾@ | — |
| Venetian red | lb. | .08 @ | .06 |
| Vermillion, quicksilver, English | lb. | 1.75 @ | 1.80 |
| Whites | | | |
| Lithopone, Akcolith | lb. | .05 3/5@ | .06 |
| Lithopone, Albalith | lb. | .05¼@ | .05¾ |
| Lithopone, Azolith | lb. | .05¼@ | .05¾ |
| Lithopone, Vanolith | lb. | .05¾@ | — |
| Titanium oxide | lb. | .21 @ | — |
| Titanox B, f.o.b. St. Louis, | lb. | .06½@ | .07 |
| Titanox C, f.o.b. St. Louis, | lb. | .07 @ | .07½ |
| **Zinc Oxide—American Process** | | | |
| American Azo: | | | |
| ZZZ (lead free) | lb. | .06½@ | .07 |
| ZZ (leaded) | lb. | .06⅞@ | .06⅞ |
| Horsehead Brand: | | | |
| Special | lb. | .07 @ | .07½ |
| XX Green | lb. | .07 @ | .07½ |
| XX Red, lead free | lb. | .06½@ | .07 |
| Kadox, black label | lb. | .10⅜@ | .10⅞ |
| blue label | lb. | .09⅜@ | .09⅞ |
| red label | lb. | .08 @ | .08½ |
| St. Joe, black label | lb. | .06½@ | .07 |
| red label | lb. | .06½@ | .07 |
| **Zinc Oxide—French Process** | | | |
| Anaconda, lead free | lb. | .06½@ | .07 |
| Anaconda, selected lead free | lb. | .07 @ | .07½ |
| White seal | lb. | .11⅝@ | .11⅞ |
| Green seal | lb. | .10⅜@ | .10⅞ |
| Red seal | lb. | .09⅜@ | .09⅞ |
| Yellows | | | |
| Chrome | lb. | .16½@ | .17 |
| Ocher, French medium | lb. | .02 @ | .03 |
| domestic | lb. | .01¾@ | .02 |

## COMPOUNDING MATERIALS

| | | | |
|---|---|---|---|
| Aluminum Flake | ton | 21.85 @ | 24.50 |
| Ammonia carbonate, lump | lb. | .10½@ | .12 |
| Asbestine | ton | 14.75 @ | 18.00 |
| Barium carbonate | ton | 56.50 @ | 57.00 |
| Barium Dust | lb. | .05 @ | .06 |
| Barytes southern off-color | ton | 12.00 @ | 18.00 |
| Western prime white | ton | 23.00 @ | — |
| imported | ton | 27.00 @ | 36.00 |
| Basofor | lb. | .04½@ | — |
| Bentonite | lb. | .02 @ | .03 |
| Blacks | | | |
| Arrow "Aerofloted" | lb. | .03½@ | .08½ |
| Bone Black | lb. | .06 @ | .12½ |
| Carbon, compressed | lb. | .03 @ | .07 |
| Carbon, uncompressed | lb. | .03 @ | .07 |
| Disperso, f.o.b. Louisiana | lb. | .03½@ | — |
| Disperso, f.o.b. Texas | lb. | .036 @ | — |
| Drop Black | lb. | .06 @ | .14 |
| Fumonex | lb. | .03½@ | .07½ |
| Excello, compressed | lb. | .04 @ | .08 |
| Gastex, f.o.b. Texas | lb. | .03 @ | .06 |
| Lamp Black | lb. | .10 @ | .40 |
| Micronex | lb. | .03½@ | .08½ |
| Thermatomic-Thermax | lb. | | |
| Flex | lb. | | |
| P-33 | lb. | | |
| United carbon, fob Tex. | lb. | .03½@ | .08½ |
| Velvetex carbon | lb. | .03 @ | .06 |
| Blanc fixe dry f.o.b. works | ton | 75.00 @ | 90.00 |
| Carrara filler | lb. | .01¾@ | .02 |
| Catalpo (fact.) | lb. | .02 @ | — |
| Clay, Kaolin, domestic | ton | 8.00 @ | 9.00 |
| Aerfloted, Suprex | ton | 8.00 @ | 20.00 |
| Colloidal | lb. | .05 @ | .08 |
| Congaree, c. l. f.o.b. mine | ton | 9.00 @ | — |
| Dark Blue Ridge | ton | | |
| Dixie | ton | | |
| Langford | ton | | |
| Lexington | ton | 10.00 @ | 22.00 |
| Mineral Flour, c.l. f.o.b. mine | ton | 20.00 @ | 23.00 |
| Par | ton | | |
| Tensulite | | 15.00 @ | — |
| Glues, extra white | lb. | .25 @ | .26 |
| medium white | lb. | .22 @ | .24 |
| Magnesia, carbonate | lb. | .08¾@ | .11 |
| Mica, white water grnd. | lb. | .06 @ | .08 |
| Off color (biotite) | lb. | .05 @ | .07 |
| Rotten Stone (powdered) | lb. | .02 @ | .05 |
| Soapstone, powdered | ton | 15.00 @ | 22.00 |
| Starch, powdered | cwt. | — @ | 2.57 |
| Talc, domestic | ton | 12.00 @ | 15.00 |
| Pyrax A | ton | | |
| Whiting, commercial | cwt. | .85 @ | 1.00 |
| English cliffstone | cwt. | 1.75 @ | 2.00 |
| Quaker | ton | | |
| Superfine | ton | 10.00 @ | 12.00 |
| Sussex | ton | | |
| Witco | ton | 20.00 @ | — |
| Zinc Carbonate | lb. | .09½@ | .10½ |
| Zinc Stearate | lb. | .19 @ | .22 |

## MINERAL RUBBER

| | | | |
|---|---|---|---|
| Genasco (factory) | ton | 50.00 @ | 52.00 |
| Granulated M. R. | ton | | |
| Hard Hydrocarbon | ton | | |
| Paradura | ton | 62.50 @ | 65.00 |
| Parmr, solid | ton | 28.00 @ | 48.00 |
| Pioneer, MR, solid | ton | 40.00 @ | 42.00 |
| Pioneer-granulated | ton | 50.00 @ | 52.00 |
| R & H Hydro-Carbon | ton | 27.05 @ | 29.00 |
| Robertson, MR, solid | ton | 34.00 @ | 80.00 |
| M.R. (gran) | ton | 38.00 @ | 80.00 |

## SOFTENERS

| | | | |
|---|---|---|---|
| Acids | | | |
| Nitric, 36 degrees | cwt. | 5.00 @ | 5.25 |
| Sulfuric, 66 degrees | cwt. | 1.60 @ | 1.95 |
| Tartaric, crystals | lb. | — @ | .26½ |
| Acids, Fatty | | | |
| Laurex | lb. | .15 @ | .16 |
| Stearex | lb. | .13 @ | .17 |
| Stearic, double pressed | lb. | .17 @ | .22 |
| Alkalies | | | |
| Caustic soda, 76% | cwt. | 2.90 @ | — |
| Soda ash, 58% C.L. | cwt. | 1.17½@ | — |
| Oils | | | |
| Corn, refined, bbls. | lb. | .08¾@ | .10½ |
| Cottonseed, crude | | — @ | .04⅛ |
| Cycline | gal. | .27 @ | .34 |
| Degras (c.l. 100 bbls.) | lb. | .03¾@ | — |
| Less c.l. (10-25 bbls.) | lb. | .04 @ | — |
| Lots less than 10 bbls. | lb. | .04¼@ | .04½ |
| Fluxrite | lb. | .05½@ | .06½ |
| Palm Lagos | lb. | .05 @ | .06 |
| Niger | lb. | .03⅝@ | .04½ |
| Para-Flux | gal. | .17 @ | — |
| Petrolatum, white | lb. | .08 @ | .08½ |
| Pigmentaroil | gal. | .18 @ | .23 |
| Pine, steam distilled | gal. | .54 @ | .61 |
| destructively distilled | gal. | .54 @ | .55 |
| Witco Palm Oil | lb. | .11 @ | — |
| Witco Softener (f.o.b. wks.) | lb. | .02 @ | — |
| Resins and Pitches | | | |
| Pitch, Burgundy | lb. | .06½@ | .07½ |
| coal tar | gal. | .05½@ | .06 |
| pine, 200 lb. gr. wt. bbl. | | 7.00 @ | — |
| Rosin, grade K, 280 lb. bbl. | | — @ | 4.05 |
| Pigmentar | gal. | .18 @ | .23 |
| Tar Retort, 50 gal. | bbl. | 13.50 @ | 15.00 |
| Solvents | | | |
| Acetone, pure | lb. | — @ | .10 |
| Alcohol, denatured, No. 1 bbls. | gal. | .28 @ | .29 |
| Benzol, 90% | gal. | .20 @ | .21 |
| Carbon, bisulfide | lb. | .05½@ | .06¼ |
| Carbon, tetrachloride | lb. | .06¼@ | .07 |
| Dryolene (f.o.b. Okla.) | gal. | .10 @ | .10½ |
| Gasoline, steel bbls. | gal | .16 @ | — |
| Naphtha, solvent | gal. | .26 @ | .31 |
| Rub-Sol (f.o.b. Okla.) | gal. | .09 @ | — |
| Turpentine, spirits | gal. | .36¼@ | .36½ |
| wood | gal. | .38 @ | .40 |
| destructively distilled | gal. | .35 @ | — |
| Waxes | | | |
| Beeswax, white | lb. | — @ | .36 |
| Carnauba | lb. | .26 @ | .28 |
| Ceresin, white | lb. | .10 @ | .11 |
| Montan, crude | lb. | .06½@ | .07 |
| Ozokerite, black | lb. | .24 @ | .25 |
| green | lb. | .26 @ | .30 |
| Paraffin (c.l.—f.o.b. N. Y.) | | | |
| Yellow crude scale | lb. | .02¼@ | — |
| White crude scale 124/126 | lb. | .02½@ | — |
| Refned, 125/127 | lb. | .03⅝@ | — |
| Refined, 128/130 | lb. | .03¾@ | — |
| Refined, 135/137 | lb. | .05¼@ | — |
| Refined, 138/140 | lb. | .07¼@ | — |

## ANTI-OXIDANTS

| | | | |
|---|---|---|---|
| AgeRite, Gel | lb. | | |
| Powder | lb. | | |
| Resin | lb. | | |
| White | lb. | | |
| Albasan | lb. | .70 @ | .75 |
| Antox | lb. | | |
| B-L-E | lb. | .57 @ | .60 |
| Neozone | lb. | | |
| Oxynone | lb. | .68 @ | .80 |
| Resistox | lb. | .54 @ | .57 |
| Stabilite | lb. | .57 @ | .62 |
| Stabilite Alba | lb. | .70 @ | .75 |
| VGB | lb. | .55 @ | .66 |

## SPECIALTIES

| | | | |
|---|---|---|---|
| Aromatics—Rodo | lb. | | |
| Sunproof | lb. | .35 @ | .37½ |
| Sponge Paste | lb. | — @ | .30 |
| Tonox | lb. | .56 @ | .60 |

## SUBSTITUTES

| | | | |
|---|---|---|---|
| Black | lb. | .08 @ | .14 |
| White | lb. | .10 @ | .16 |
| Brown | lb. | .08 @ | .15 |

## VULCANIZING INGREDIENTS

| | | | |
|---|---|---|---|
| Sulfur Chloride (drums) | lb. | .03½@ | .04⅛ |
| Sulfur flour, Ref'n'd, 100% pure (bags) | cwt. | 2.40 @ | 2.75 |
| Commercial (bags | cwt. | 1.75 @ | 2.10 |
| Telloy | lb. | | |
| Vandex | lb. | | |

TIRES & TUBES
CRUDE RUBBER

# STATISTICAL SECTION

AUTOMOBILES
GASOLINE

STOCKS of crude rubber on hand and afloat to the United States at the end of September totaled more than 85 per cent of the country's consumption in the full year of 1930. There was a further rise during October, although not quite so heavy owing to the lowered imports.

It now appears likely that stocks on hand and afloat will by the end of the year be practically equal to the 1931 consumption in this country. This, however, is not necessarily an alarming condition inasmuch as warehouse stocks in England have long exceeded that country's total annual requirements.

**PLAN OF THE SECTION**

**The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available.**

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United States Rubber Imports and Exports
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Stocks of Crude Rubber in the U. S.
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Consumption, etc., of Reclaimed Rubber

London and Liverpool stocks continued to decline slightly last month, the total on October 31 being 133,514 long tons as compared to 134,834 long tons on September 26.

Gasoline consumption in September fell below the 1930 figure for that month, the first time since May that the previous year's total has not been exceeded. Automobile production dropped sharply, but the introduction of new models may bring an increase in output.

Latest figures covering imports and exports from the leading producing and consuming countries have been added to the appropriate tables in this section.

## U. S. Imports and Exports of Crude Rubber

| | Gross Imports | | | Re-exports | | | Net Imports |
|---|---|---|---|---|---|---|---|
| YEARS | Long Tons | Total Declared Value | Average Declared Value per pound Cents | Long Tons | Total Declared Value | Average Declared Value per pound Cents | Long Tons |
| 1921 | 185,394 | 73,772,677 | 17.76 | 5,716 | 2,414,924 | 18.86 | 179,678 |
| 1922 | 301,076 | 101,843,188 | 15.10 | 4,809 | 1,921,828 | 17.84 | 296,267 |
| 1923 | 309,144 | 185,060,304 | 26.72 | 8,772 | 5,672,319 | 28.87 | 300,372 |
| 1924 | 328,056 | 174,231,331 | 23.71 | 10,309 | 6,057,637 | 26.23 | 317,747 |
| 1925 | 396,642 | 429,705,014 | 48.36 | 14,827 | 19,847,753 | 59.76 | 381,815 |
| 1926 | 413,338 | 505,817,807 | 54.63 | 17,671 | 22,470,583 | 56.77 | 395,667 |
| 1927 | 426,258 | 339,874,774 | 35.60 | 27,775 | 24,735,488 | 39.76 | 398,483 |
| 1928 | 439,731 | 244,854,973 | 25.03 | 32,159 | 18,128,361 | 25.17 | 407,572 |
| 1929 | 560,084 | 239,178,783 | 19.15 | 36,485 | 16,868,733 | 20.64 | 523,599 |
| 1930 | 482,082 | 139,134,330 | 12.89 | 30,205 | 9,316,205 | 13.77 | 451,877 |
| 1929: | | | | | | | |
| Jan. | 57,564 | 22,872,943 | 17.74 | 3,663 | 1,773,401 | 21.61 | 53,901 |
| Feb. | 64,265 | 24,760,111 | 17.20 | 2,955 | 1,374,783 | 20.77 | 61,310 |
| Mar. | 50,604 | 20,380,905 | 17.98 | 4,218 | 2,094,037 | 22.16 | 46,386 |
| Apr. | 55,725 | 25,542,726 | 20.46 | 3,293 | 1,524,237 | 22.02 | 52,432 |
| May | 51,161 | 24,355,511 | 21.25 | 2,386 | 1,349,690 | 21.24 | 48,325 |
| June | 41,663 | 18,799,307 | 20.14 | 3,152 | 1,470,746 | 20.83 | 38,511 |
| July | 43,944 | 19,342,147 | 19.65 | 3,424 | 1,590,411 | 20.73 | 40,520 |
| Aug. | 37,222 | 16,530,090 | 19.83 | 2,644 | 1,232,217 | 20.80 | 34,578 |
| Sept. | 34,472 | 15,214,485 | 19.76 | 2,011 | 861,068 | 19.11 | 32,461 |
| Oct. | 38,163 | 16,192,261 | 18.94 | 2,614 | 1,190,510 | 20.33 | 35,549 |
| Nov. | 43,507 | 18,189,305 | 18.66 | 2,929 | 1,300,354 | 19.82 | 40,578 |
| Dec. | 42,952 | 17,573,330 | 18.27 | 2,745 | 1,007,279 | 16.38 | 40,207 |
| 1930: | | | | | | | |
| Jan. | 47,496 | 17,793,563 | 16.72 | 3,144 | 1,077,415 | 15.30 | 44,352 |
| Feb. | 42,687 | 14,798,240 | 15.48 | 2,280 | 960,790 | 18.80 | 40,407 |
| Mar. | 44,976 | 14,653,243 | 14.54 | 3,187 | 1,192,708 | 16.71 | 41,789 |
| Apr. | 45,423 | 14,783,605 | 14.53 | 2,688 | 892,532 | 14.82 | 42,735 |
| May | 42,692 | 13,373,232 | 13.98 | 3,154 | 1,085,432 | 15.37 | 39,538 |
| June | 39,993 | 12,215,848 | 13.79 | 3,174 | 1,028,653 | 14.47 | 36,819 |
| July | 35,182 | 10,553,944 | 13.39 | 2,807 | 759,260 | 12.08 | 32,375 |
| Aug. | 35,713 | 9,666,362 | 12.08 | 2,357 | 655,773 | 12.42 | 33,356 |
| Sept. | 35,380 | 8,460,812 | 10.68 | 1,514 | 430,772 | 12.70 | 33,866 |
| Oct. | 46,069 | 9,893,980 | 9.59 | 2,432 | 419,325 | 7.70 | 43,637 |
| Nov. | 29,401 | 5,700,086 | 8.66 | 1,300 | 271,348 | 9.32 | 28,101 |
| Dec. | 37,300 | 7,175,242 | 8.59 | 2,168 | 542,197 | 11.17 | 35,132 |
| 1931: | | | | | | | |
| Jan. | 36,307 | 7,190,591 | 8.84 | 1,706 | 350,480 | 9.17 | 34,601 |
| Feb. | 34,005 | 6,564,969 | 8.62 | 1,799 | 357,078 | 8.86 | 32,206 |
| Mar. | 40,393 | 7,356,505 | 8.13 | 2,800 | 534,180 | 8.52 | 37,593 |
| Apr. | 44,536 | 7,712,941 | 7.73 | 2,607 | 528,947 | 9.06 | 41,929 |
| May | 35,526 | 5,886,638 | 7.40 | 2,501 | 418,301 | 7.47 | 33,025 |
| June | 46,233 | 6,918,900 | 6.68 | 2,749 | 440,604 | 7.15 | 43,484 |
| July | 43,469 | 6,023,748 | 6.19 | 1,435 | 223,587 | 6.96 | 42,034 |
| Aug. | 38,669 | 5,138,404 | 5.93 | 2,324 | 345,953 | 6.65 | 36,345 |
| Sept. | 38,494 | 4,970,324 | 5.76 | 1,362 | 187,431 | 6.14 | 37,132 |
| Oct. | | | | | | | |
| Nov. | | | | | | | |
| Dec. | | | | | | | |

## U. S. Consumption of Crude Rubber

*(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)*

**Figures on Monthly Basis**

| | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 | 1931 |
|---|---|---|---|---|---|---|---|---|
| Jan. | 29,058 | 29,638 | 32,196 | 31,518 | 34,403 | 43,002 | 36,194 | 28,557 |
| Feb. | 25,736 | 29,761 | 31,136 | 30,137 | 33,702 | 41,594 | 32,302 | 28,797 |
| Mar. | 28,385 | 33,498 | 32,936 | 36,141 | 35,688 | 44,730 | 35,450 | 32,788 |
| Apr. | 27,129 | 34,139 | 32,696 | 35,871 | 32,772 | 47,521 | 39,686 | 33,321 |
| May | 25,845 | 35,322 | 29,364 | 34,592 | 37,333 | 49,233 | 39,386 | 37,817 |
| June | 22,753 | 35,822 | 28,598 | 33,801 | 37,676 | 43,227 | 34,195 | 37,916 |
| July | 23,396 | 36,053 | 27,577 | 29,219 | 37,407 | 41,526 | 29,508 | 31,937 |
| Aug. | 28,982 | 35,909 | 34,533 | 33,460 | 42,927 | 38,274 | 30,850 | 27,586 |
| Sept. | 31,497 | 31,691 | 32,904 | 27,214 | 39,882 | 34,707 | 25,515 | 23,638 |
| Oct. | 31,520 | 29,047 | 29,836 | 26,790 | 40,857 | 34,800 | 27,516 | ..... |
| Nov. | 27,289 | 28,253 | 28,080 | 26,792 | 37,461 | 27,659 | 23,691 | ..... |
| Dec. | 27,199 | 28,748 | 26,293 | 25,492 | 31,232 | 23,531 | 21,687 | ..... |
| Totals | 328,769 | 388,481 | 366,149 | 371,027 | 441,340 | 469,804 | 375,980 | ..... |

**Figures on Quarterly Basis**

| Quarter | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 | 1931 |
|---|---|---|---|---|---|---|---|---|
| Jan./Mar. | 87,609 | 95,263 | 94,301 | 99,216 | 103,558 | 128,565 | 101,610 | 89,652 |
| Apr./June | 75,674 | 104,099 | 87,109 | 103,242 | 103,500 | 139,292 | 112,229 | 107,755 |
| July/Sept. | 83,813 | 99,493 | 93,793 | 89,210 | 117,573 | 113,746 | 85,261 | |
| Oct./Dec. | 92,656 | 85,789 | 83,212 | 80,860 | 117,597 | 84,872 | 72,020 | |
| Totals | 339,752 | 384,644 | 358,415 | 372,528 | 442,227 | 466,475 | 371,120 | |

**Note—The Rubber Association estimates its monthly rubber consumption figures to be 90 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.**

## U. S. Consumption of Gasoline

*(In Barrels of 42 Gallons)*

| MONTHS | 1930 | 1931 | MONTHS | 1930 | 1931 |
|---|---|---|---|---|---|
| January | 25,731,000 | 26,844,000 | July | 38,256,000 | 39,459,000 |
| February | 26,509,000 | 26,133,000 | August | 37,433,000 | 39,459,000 |
| March | 31,029,000 | 31,037,000 | September | 37,823,000 | 36,742,000 |
| April | 34,549,000 | 33,400,000 | October | 32,267,000 | |
| May | 36,497,000 | 35,716,000 | November | 30,984,000 | |
| June | 35,902,000 | 38,375,000 | December | 29,094,000 | |

## Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

| | 1 | 3 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 29 | 30 | 31 | Ave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1929** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| July | 20¾ | 21¼ | 21 | 21¼ | 21¼ | — | 22½ | 21¾ | 21¾ | 21¾ | 21¾ | 21¾ | 21¾ | 21¾ | 21 | 21 | 20⅝ | 20⅝ | 20⅝ | 21¼ | 21¼ | 20⅝ | 20⅝ | 21⅜ | 21⅜ | 21¼ | 21¼ | 21¼ | 21¼ |
| Aug. | 21⅜ | 21 | 21 | 21 | 21 | 21 | 21 | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20¾ | — | 20⅜ |
| Sept. | — | — | 20¼ | 20¼ | 20¼ | 20¼ | 20¼ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 20⅝ | 19⅞ | 19⅞ | 19⅞ | 19⅞ | 19⅞ | 19⅞ | 19⅞ |
| Oct. | 19⅞ | 19½ | 19⅜ | 19⅜ | 20⅛ | 20⅛ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 20⅜ | 18⅞ | 19⅛ | 19⅛ | 18¾ | 18¾ | 18¾ | 19⅛ |
| Nov. | 17⅞ | — | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 17⅜ | 16¼ | 16¼ | 16¼ | 16¼ | 16¼ | 16¼ | 16¾ |
| Dec. | — | 16¼ | 16¼ | 16¼ | 16¼ | — | 16¾ | 16¾ | 16¾ | 16¾ | 16¾ | 16¾ | 16¾ | — | 16½ | 16 | 16⅛ | 16⅛ | 16⅛ | 16⅛ | 16⅛ | 15⅞ | 15⅞ | 15⅞ | 16⅛ | 16⅛ | 16⅛ | 16⅛ | 16⅛ |
| **1930** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| January | — | 15¾ | 15¾ | 15¾ | 15¾ | 15¾ | 15 | 14¾ | 14½ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 15½ | 15½ | 15½ | 15½ | 15½ | 15½ | 15¼ | 15¼ | 15¼ | 15¼ | 15¼ | 15¼ | 15¼ | 15¼ |
| February | 15¾ | — | 15 | 15 | 15¾ | 15¾ | 15⅛ | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15¾ | 15¾ | 16¼ | 16 | 16 | 15½ | 15½ | 15½ | 15½ | 15¾ | 15¾ | 15¾ | 15¾ | 15¾ | 15½ |
| March | 15⅞ | 15⅞ | 15¾ | 15¾ | 15⅝ | 15⅝ | 15⅛ | 15⅛ | 15⅛ | 15⅛ | 15⅛ | 15⅛ | 15⅛ | 15⅛ | 15⅝ | 15⅝ | 15⅝ | 15⅝ | 15⅝ | 15⅝ | 15⅝ | 15⅝ | 15⅝ | 15⅝ | 15⅝ | 15⅝ | 15⅝ | 15⅝ | 15⅝ |
| April | 15½ | 15½ | 15½ | 15¼ | 15¼ | 15¼ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ | 14¾ |
| May | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ | 14⅝ |
| June | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| July | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ |
| August | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ |
| September | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ |
| October | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ |
| November | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| **1931** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| January | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| February | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| March | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ | 8⅝ |
| April | 7¾ | 7¾ | 8 | 7¾ | 7¾ | 8¼ | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| May | 6⅝ | — | — | 6⅛ | 6⅝ | — | — | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ | 6⅝ |
| June | 6 | 6 | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ | 6⅜ |
| July | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ | 6¾ |
| August | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ | 5¾ |
| September | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ | 5⅛ |
| October | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ |
| November | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

## Average Spot Closing Prices—Ribbed Smoked Sheets

*(New York Market)*

### Average Price per Pound for Years 1910-1921

| Year | Cents | Year | Cents | Year | Cents |
|---|---|---|---|---|---|
| 1910 | 206.60 | 1914 | 65.33 | 1918 | 60.15 |
| 1911 | 141.30 | 1915 | 65.85 | 1919 | 48.70 |
| 1912 | 121.60 | 1916 | 72.50 | 1920 | 36.30 |
| 1913 | 82.04 | 1917 | 72.23 | 1921 | 16.86 |

### Average Monthly Price per Pound Since 1922

| Month | 1922 Cents | 1923 Cents | 1924 Cents | 1925 Cents | 1926 Cents | 1927 Cents | 1928 Cents | 1929 Cents | 1930 Cents | 1931 Cents |
|---|---|---|---|---|---|---|---|---|---|---|
| Jan. | 18.82 | 32.73 | 25.86 | 36.71 | 79.50 | 38.75 | 40.25 | 20.14 | 15.24 | 8.34 |
| Feb. | 16.12 | 35.14 | 25.29 | 36.01 | 62.25 | 38.25 | 32.75 | 23.97 | 15.85 | 7.70 |
| Mar. | 14.53 | 34.21 | 22.83 | 41.00 | 59.00 | 41.04 | 26.82 | 24.55 | 15.34 | 7.71 |
| Apr. | 15.99 | 32.48 | 22.51 | 43.64 | 51.25 | 40.86 | 18.97 | 21.18 | 14.93 | 6.43 |
| May | 15.25 | 27.39 | 18.89 | 58.47 | 47.75 | 40.76 | 18.99 | 21.46 | 14.24 | 6.49 |
| June | 15.11 | 26.88 | 18.81 | 77.26 | 42.50 | 37.25 | 19.59 | 20.64 | 12.45 | 6.35 |
| July | 14.67 | 26.10 | 22.16 | 103.16 | 41.03 | 34.87 | 19.40 | 21.30 | 11.24 | 6.37 |
| Aug. | 13.93 | 28.84 | 26.17 | 82.99 | 38.50 | 35.12 | 19.46 | 20.59 | 9.96 | 5.38 |
| Sept. | 14.44 | 28.95 | 27.56 | 88.88 | 41.00 | 33.67 | 18.47 | 20.37 | 8.28 | 5.08 |
| Oct. | 19.78 | 26.93 | 31.13 | 98.01 | 42.50 | 34.32 | 18.83 | 19.67 | 8.20 | 4.87 |
| Nov. | 23.88 | 27.14 | 34.33 | 104.80 | 38.50 | 37.58 | 18.26 | 16.62 | 9.01 | |
| Dec. | 27.42 | 26.60 | 37.88 | 98.51 | 38.25 | 40.63 | 17.97 | 16.12 | 9.05 | |
| Average for Year | 17.50 | 29.45 | 26.20 | 72.46 | 48.50 | 37.72 | 22.48 | 20.55 | 11.98 | |

## London Closing Prices of Ribbed Smoked Sheet

*(In Pence Per Pound)*

| Day | Aug. | Sept. | Oct. | Nov. | Day | Aug. | Sept. | Oct. | Nov. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | — | 2¼ | 2⅜ | — | 17 | 2⅜ | 2⅜ | 2⅞ | — |
| 2 | — | 2¼ | 2⅞ | 2⅞ | 18 | 2⅜ | 2⅜ | — | — |
| 3 | — | 2¼ | 2⅞ | 2¾ | 19 | 2⅜ | 2⅜ | 3 | — |
| 4 | 2⅝ | 2¼ | — | 2¾ | 20 | 2⅜ | — | 3 | — |
| 5 | 2⅝ | 2¼ | 2⅞ | — | 21 | 2¾ | 2⅝ | 3 | — |
| 6 | 2½ | — | 2⅞ | — | 22 | 2⅜ | 2⅝ | 3 | — |
| 7 | 2½ | 2¼ | 3 | — | 23 | — | 2⅞ | 3 | — |
| 8 | 2½ | 2⅜ | 3 | — | 24 | 2⅜ | 3½ | 2⅞ | — |
| 9 | — | 2⅜ | 3 | — | 25 | 2⅜ | 3⅛ | — | — |
| 10 | 2⅜ | 2⅜ | 2⅞ | — | 26 | 2⅜ | 2⅞ | 2¾ | — |
| 11 | 2⅜ | 2½ | — | — | 27 | 2¼ | — | 2¾ | — |
| 12 | 2⅜ | 2½ | 2⅞ | — | 28 | 2¼ | 2⅞ | 2⅞ | — |
| 13 | 2⅜ | — | 3 | — | 29 | 2¼ | 2¾ | 2¾ | — |
| 14 | 2½ | 2⅜ | 2⅞ | — | 30 | — | 2¾ | 2¾ | — |
| 15 | 2½ | 2¼ | 3 | — | 31 | 2¼ | — | 2¾ | — |
| 16 | — | 2⅜ | 3 | — | | | | | |

### Average Monthly Price Per Pound

| Month | 1929 Pence | 1930 Pence | 1931 Pence | Month | 1929 Pence | 1930 Pence | 1931 Pence |
|---|---|---|---|---|---|---|---|
| Jan. | 9.942 | 7.471 | 4.160 | Aug. | 10.505 | 4.880 | 2.385 |
| Feb. | 11.875 | 7.948 | 3.823 | Sept. | 10.160 | 4.075 | 2.524 |
| Mar. | 12.135 | 7.595 | 3.822 | Oct. | 9.620 | 4.023 | 2.898 |
| Apr. | 10.490 | 7.391 | 3.082 | Nov. | 8.442 | 4.440 | |
| May | 10.717 | 6.926 | 3.035 | Dec. | 7.958 | 4.516 | |
| June | 10.580 | 6.195 | 3.082 | Average for Year | 10.291 | 5.926 | |
| July | 11.065 | 5.648 | 3.048 | | | | |

## Spot Closing Cotton Prices

*(Middling Upland Grade—New York Market)*

### Recent Daily Price Per Pound

| Day of Month | Oct. | Nov. | Day of Month | Oct. | Nov. | Day of Month | Oct. | Nov. |
|---|---|---|---|---|---|---|---|---|
| 1 | 5.80 | —— | 11 | —— | —— | 21 | 6.80 | —— |
| 2 | 5.70 | 6.70 | 12 | —— | —— | 22 | 6.70 | —— |
| 3 | 5.60 | —— | 13 | 6.30 | —— | 23 | 6.90 | —— |
| 4 | —— | 6.55 | 14 | 6.25 | —— | 24 | 6.90 | —— |
| 5 | 5.50 | —— | 15 | 6.20 | —— | 25 | —— | —— |
| 6 | 5.85 | —— | 16 | 6.25 | —— | 26 | 6.65 | —— |
| 7 | 5.75 | —— | 17 | 6.50 | —— | 27 | 7.00 | —— |
| 8 | 5.95 | —— | 18 | —— | —— | 28 | 6.70 | —— |
| 9 | 5.80 | —— | 19 | 6.75 | —— | 29 | 6.70 | —— |
| 10 | 5.85 | —— | 20 | 6.65 | —— | 30 | 6.70 | —— |
| | | | | | | 31 | 6.70 | —— |

### Average Monthly Price Per Pound

| | 1929 Cents | 1930 Cents | 1931 Cents | | 1929 Cents | 1930 Cents | 1931 Cents |
|---|---|---|---|---|---|---|---|
| Jan. | 20.22 | 17.21 | 10.27 | Aug. | 18.62 | 12.03 | 7 21 |
| Feb. | 20.21 | 15.62 | 10.96 | Sept. | 18.83 | 10.85 | 6.52 |
| Mar. | 20.19 | 15.13 | 10.90 | Oct. | 18.46 | 10.63 | 6.32 |
| Apr. | 20.29 | 16.39 | 10.19 | Nov. | 17.53 | 10.96 | |
| May | 19.41 | 16.43 | 9.38 | Dec. | 17.28 | 10.02 | |
| June | 18.74 | 14.48 | 9.05 | Average for Year | 19.03 | 13.57 | |
| July | 18.62 | 13.10 | 9.28 | | | | |

# World Stocks of Crude Rubber

## ON HAND OR AFLOAT TO THE U. S.

| At End of | ON HAND 1929 | ON HAND 1930 | ON HAND 1931 | AFLOAT 1929 | AFLOAT 1930 | AFLOAT 1931 | ON HAND AND AFLOAT 1929 | ON HAND AND AFLOAT 1930 | ON HAND AND AFLOAT 1931 |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 76,342 | 131,744 | 209,487 | 93,330 | 61,863 | 56,187 | 169,672 | 193,607 | 265,674 |
| Feb. | 90,058 | 143,863 | 212,833 | 75,790 | 63,404 | 63,680 | 165,848 | 207,267 | 276,513 |
| Mar. | 100,536 | 141,843 | 217,804 | 67,065 | 63,646 | 63,133 | 167,601 | 205,489 | 280,937 |
| Apr. | 107,659 | 148,272 | 228,382 | 65,798 | 63,261 | 56,700 | 173,457 | 211,533 | 285,082 |
| May | 97,192 | 146,179 | 220,799 | 65,793 | 68,168 | 73,564 | 162,985 | 214,347 | 294,363 |
| June | 92,061 | 151,551 | 225,536 | 54,668 | 58,657 | 69,421 | 146,729 | 210,209 | 294,957 |
| July | 92,535 | 152,001 | 234,822 | 46,145 | 58,326 | 66,873 | 138,680 | 210,327 | 301,695 |
| Aug. | 90,769 | 158,604 | 240,816 | 49,423 | 61,168 | 61,469 | 140,192 | 219,772 | 302,285 |
| Sept. | 84,362 | 169,927 | 254,324 | 58,758 | 60,923 | 62,420 | 143,120 | 230,851 | 316,744 |
| Oct. | 88,483 | 185,470 | ..... | 59,180 | 51,122 | ..... | 147,663 | 236,593 | ..... |
| Nov. | 92,219 | 189,925 | ..... | 62,358 | 52,538 | ..... | 154,577 | 242,463 | ..... |
| Dec. | 118,609 | 200,998 | ..... | 62,388 | 56,035 | ..... | 180,997 | 257,033 | ..... |

(Rubber Manufacturers' Association figures raised to 100%)

## STOCKS IN GREAT BRITAIN

### Stocks in London

*(No. of Tons in Wharves and Warehouses, including Latex)*

| At end of | 1929 | 1930 | 1931 | At end of | 1929 | 1930 | 1931 |
|---|---|---|---|---|---|---|---|
| Jan. | 25,191 | 60,434 | 81,093 | July | 30,080 | 81,048 | 81,317 |
| Feb. | 25,554 | 64,557 | 82,265 | Aug. | 35,605 | 80,931 | 81,560 |
| Mar. | 28,214 | 68,923 | 84,736 | Sept. | 42,188 | 83,329 | |
| Apr. | 31,368 | 74,676 | 86,982 | Oct. | 47,803 | 77,647 | |
| May | 31,290 | 77,312 | 86,726 | Nov. | 52,454 | 76,887 | |
| June | 31,025 | 80,260 | 83,071 | Dec. | 54,304 | 78,013 | |

### At End of Recent Weeks

| | First Saturday | Second Saturday | Third Saturday | Fourth Saturday | Fifth Saturday |
|---|---|---|---|---|---|
| 1931 | | | | | |
| June | 84,915 | 83,743 | 82,919 | 82,441 | |
| July | 82,170 | 82,079 | 81,766 | 81,104 | |
| August | 81,335 | 81,711 | 82,171 | 81,751 | 81,575 |
| September | 81,011 | 81,011 | 81,048 | 80,055 | |
| October | 79,246 | 78,735 | 78,704 | 78,465 | 76,698 |

### Stocks in Liverpool

| | | | | | |
|---|---|---|---|---|---|
| 1931 | | | | | |
| June | 54,258 | 54,812 | 54,422 | 54,086 | |
| July | 54,522 | 54,444 | 54,697 | 54,335 | |
| August | 54,881 | 55,336 | 54,906 | 54,722 | 55,609 |
| September | 55,239 | 54,791 | 55,024 | 54,779 | |
| October | 54,677 | 55,518 | 55,276 | 55,797 | 56,816 |

## STOCKS IN PENANG AND SINGAPORE

*(Stocks held by Dealers—Quantities in Long Tons)*

| End of | 1929 | 1930 | 1931 | End of | 1929 | 1930 | 1931 |
|---|---|---|---|---|---|---|---|
| Jan. | 29,617 | 39,727 | 49,802 | July | 33,859 | 45,459 | 51,203 |
| Feb. | 32,373 | 44,371 | 49,283 | Aug. | 30,834 | 48,132 | 48,971 |
| Mar. | 29,437 | 45,657 | 49,590 | Sept. | 32,138 | 44,015 | 47,025 |
| Apr. | 26,474 | 42,473 | 45,868 | Oct. | 33,770 | 39,930 | |
| May | 30,764 | 44,715 | 44,278 | Nov. | 30,963 | 41,674 | |
| June | 30,403 | 42,451 | 47,517 | Dec. | 35,548 | 45,963 | |

## STOCKS IN OTHER CENTRES

| 1930 End of | Malaya Mainland | Afloat for Europe | Holland | Colombo | Para and Manaos |
|---|---|---|---|---|---|
| Oct. | 38,587 | 27,630 | 2,378 | 5,600 | 5,156 |
| Nov. | 40,551 | 24,220 | 2,405 | 5,400 | 4,535 |
| Dec. | 40,919 | 25,980 | 2,569 | 5,189 | 5,132 |
| 1931: | | | | | |
| Jan. | 41,620 | 24,500 | 3,168 | | 5,124 |
| Feb. | 43,027 | 24,580 | 3,326 | | 5,404 |
| Mar. | 40,227 | 25,800 | 3,622 | 3,857 | 4,843 |
| Apr. | 37,103 | 18,500 | 3,659 | | 5,137 |
| May | 37,171 | 17,770 | 3,380 | | 4,896 |
| June | 38,748 | 18,440 | 3,219 | 3,518 | 4,894 |
| July | 40,377 | 19,960 | 3,111 | | 4,548 |
| Aug. | 40,606 | 18,880 | 3,204 | | 4,571 |
| Sept. | 37,114 | 19,000 | 3,293 | 2,763 | 4,972 |

# Rims Inspected and Passed in U. S.

*(Tire and Rim Association Reports)*

| | Total | Per Cent Balloons | | Total | Per Cent Balloons |
|---|---|---|---|---|---|
| 1923 | 23,140,620 | 9.6 | 1927 | 19,700,003 | 79.1 |
| 1924 | 21,863,311 | 19.7 | 1928 | 24,247,282 | 81.6 |
| 1925 | 26,001,664 | 66.8 | 1929 | 24,141,502 | 80.3 |
| 1926 | 24,199,524 | 78.8 | 1930 | 17,364,096 | 80.1 |
| 1931 | | | 1931 | | |
| January | 681,301 | 67.9 | July | 812,642 | 74.0 |
| February | 1,010,774 | 73.9 | August | 924,236 | 80.8 |
| March | 1,425,836 | 81.4 | September | 504,879 | 70.4 |
| April | 1,717,652 | 79.9 | October | | |
| May | 1,508,349 | 83.7 | November | | |
| June | 1,084,707 | 77.8 | December | | |

# U. S. Tire and Tube Statistics

*(All Figures Represent Thousands)*

## AUTOMOBILE CASINGS

### Figures for Recent Years

| | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 |
|---|---|---|---|---|---|---|---|---|
| Production | 45,259 | 51,633 | 60,845 | 61,237 | 64,439 | 77,944 | 68,726 | 50,966 |
| Shipments | 45,204 | 50,120 | 59,262 | 59,002 | 64,059 | 74,296 | 69,395 | 58,638 |
| Inventory[2] | 5,772 | 7,427 | 8,142 | 10,456 | 10,264 | 13,624 | 11,838 | 9,003 |

### Figures for Recent Months

| | PRODUCTION 1929 | 1930 | 1931 | SHIPMENTS 1929 | 1930 | 1931 | INVENTORY 1929 | 1930 | 1931 |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 6,301 | 4,485 | 3,675 | 6,211 | 4,406 | 3,744 | 12,855 | 11,924 | 8,957 |
| Feb. | 6,479 | 4,555 | 3,985 | 4,951 | 4,195 | 3,402 | 14,525 | 11,410 | 9,536 |
| Mar. | 7,049 | 4,863 | 4,665 | 6,289 | 4,717 | 4,122 | 15,329 | 12,513 | 10,014 |
| Apr. | 7,391 | 5,648 | 4,944 | 6,838 | 5,089 | 4,932 | 15,870 | 13,076 | 10,031 |
| May | 7,636 | 5,717 | 5,679 | 6,735 | 5,216 | 5,415 | 16,733 | 13,432 | 10,312 |
| June | 6,847 | 5,122 | 5,672 | 6,800 | 5,294 | 5,572 | 16,497 | 13,277 | 10,447 |
| July | 6,320 | 3,991 | 4,926 | 7,364 | 5,447 | 5,462 | 15,034 | 11,812 | 9,919 |
| Aug. | 5,693 | 4,166 | 3,906 | 7,354 | 5,175 | 4,960 | 13,337 | 10,848 | 8,896 |
| Sept. | 4,460 | 3,365 | | 5,623 | 4,405 | | 12,070 | 9,812 | |
| Oct. | 4,611 | 3,582 | | 4,649 | 3,499 | | 12,042 | 9,803 | |
| Nov. | 3,378 | 2,654 | | 3,355 | 2,834 | | 12,127 | 9,595 | |
| Dec. | 3,057 | 2,814 | | 3,237 | 3,361 | | 11,838 | 9,003 | |

## AUTOMOBILE INNER TUBES

### Figures for Recent Years

| | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 |
|---|---|---|---|---|---|---|---|---|
| Production | 60,116 | 70,706 | 82,614 | 76,618 | 70,823 | 80,180 | 68,829 | 52,420 |
| Shipments | 59,072 | 68,106 | 81,004 | 71,591 | 72,896 | 77,127 | 70,592 | 54,938 |
| Inventory[2] | 8,425 | 11,052 | 11,313 | 16,200 | 13,692 | 16,117 | 12,807 | 9,999 |

### Figures for Recent Months

| | PRODUCTION 1929 | 1930 | 1931 | SHIPMENTS 1929 | 1930 | 1931 | INVENTORY 1929 | 1930 | 1931 |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 6,109 | 4,607 | 3,623 | 6,789 | 4,857 | 4,062 | 14,424 | 12,704 | 9,439 |
| Feb. | 6,346 | 4,634 | 3,916 | 4,948 | 4,337 | 3,400 | 15,936 | 13,036 | 9,921 |
| Mar. | 7,000 | 4,941 | 4,450 | 6,317 | 4,727 | 3,789 | 16,641 | 13,179 | 10,475 |
| Apr. | 7,157 | 5,510 | 4,617 | 6,716 | 4,848 | 4,636 | 17,000 | 13,784 | 10,413 |
| May | 7,181 | 5,535 | 5,413 | 6,598 | 5,074 | 5,281 | 17,745 | 13,852 | 10,549 |
| June | 6,542 | 4,950 | 5,358 | 6,515 | 5,265 | 5,397 | 17,294 | 13,612 | 10,504 |
| July | 5,793 | 3,939 | 4,955 | 7,605 | 5,855 | 5,831 | 15,311 | 11,657 | 9,589 |
| Aug. | 5,481 | 4,796 | 4,435 | 7,672 | 5,762 | 5,301 | 13,072 | 10,737 | 8,774 |
| Sept. | 5,190 | 3,817 | | 5,859 | 4,541 | | 12,585 | 10,065 | |
| Oct. | 5,000 | 3,951 | | 4,689 | 3,472 | | 12,802 | 10,517 | |
| Nov. | 3,544 | 2,680 | | 3,480 | 2,788 | | 12,845 | 10,313 | |
| Dec. | 3,484 | 3,060 | | 3,404 | 3,412 | | 12,807 | 9,999 | |

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% complete up until 1929 and 80% complete beginning with 1929, and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

# Automobile Production

| | United States Total | Passenger Cars | Trucks | Canada Total | Passenger Cars | Trucks | Grand Total |
|---|---|---|---|---|---|---|---|
| 1924 | 3,600,918 | 3,203,049 | 397,869 | 135,246 | 117,765 | 17,481 | 3,736,164 |
| 1925 | 4,265,704 | 3,760,459 | 505,245 | 161,389 | 139,311 | 22,078 | 4,427,093 |
| 1926 | 4,298,799 | 3,808,753 | 490,046 | 205,002 | 164,483 | 40,609 | 4,503,891 |
| 1927 | 3,393,887 | 2,938,868 | 453,019 | 179,426 | 146,850 | 32,556 | 3,573,313 |
| 1928 | 4,357,384 | 3,826,613 | 530,771 | 242,382 | 196,737 | 45,645 | 4,599,944 |
| 1929 | 5,358,420 | 4,587,400 | 771,020 | 263,295 | 207,498 | 55,797 | 5,621,715 |
| 1930 | | | | | | | |
| Jan. | 273,089 | 235,099 | 37,990 | 10,388 | 8,856 | 1,532 | 283,477 |
| Feb. | 346,940 | 297,483 | 49,457 | 15,548 | 13,021 | 2,527 | 362,488 |
| March | 401,378 | 336,178 | 64,200 | 20,730 | 17,165 | 3,565 | 422,108 |
| April | 442,630 | 375,171 | 67,459 | 24,257 | 20,872 | 3,385 | 466,887 |
| May | 417,154 | 362,784 | 54,370 | 24,672 | 21,251 | 3,421 | 441,826 |
| June | 335,475 | 289,704 | 45,771 | 15,090 | 12,194 | 2,896 | 350,565 |
| July | 262,363 | 222,700 | 39,663 | 10,188 | 8,556 | 1,632 | 272,551 |
| Aug. | 224,368 | 187,288 | 35,758 | 9,792 | 6,946 | 2,846 | 234,160 |
| Sept. | 216,877 | 175,720 | 41,157 | 7,957 | 5,623 | 2,334 | 224,834 |
| Oct. | 150,044 | 112,800 | 37,244 | 4,541 | 3,206 | 1,335 | 154,585 |
| Nov. | 135,752 | 102,957 | 32,795 | 5,407 | 3,527 | 1,880 | 141,159 |
| Dec. | 155,701 | 124,173 | 31,528 | 5,622 | 4,225 | 1,397 | 161,323 |
| Total | 3,355,986 | 2,814,452 | 540,534 | 154,192 | 125,442 | 28,750 | 3,510,178 |
| 1931 | | | | | | | |
| Jan. | 171,848 | 138,317 | 33,531 | 6,496 | 4,552 | 1,944 | 178,344 |
| Feb. | 219,940 | 180,419 | 39,521 | 9,871 | 7,529 | 2,342 | 229,811 |
| Mar. | 276,405 | 231,244 | 45,161 | 12,993 | 10,483 | 2,510 | 289,398 |
| Apr. | 336,939 | 285,693 | 50,015 | 17,159 | 14,043 | 3,116 | 354,098 |
| May | 317,163 | 269,420 | 45,695 | 12,738 | 10,621 | 2,117 | 329,901 |
| June | 250,640 | 208,158 | 41,304 | 6,835 | 5,583 | 1,252 | 257,475 |
| July | 218,490 | 183,107 | 35,854 | 4,220 | 3,151 | 1,069 | 222,710 |
| Aug. | 187,197 | 155,425 | 31,772 | 4,544 | 3,426 | 1,118 | 191,741 |
| Sept. | 140,566 | 109,228 | 31,338 | 2,646 | 2,108 | 538 | 143,212 |
| Oct. | | | | | | | |
| Nov. | | | | | | | |
| Dec. | | | | | | | |

# Exports of Crude Rubber from Principal Producing Countries

(*Long Tons*)

| | BRITISH MALAYA[1] | | | | | | | DUTCH EAST INDIES[4] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gross Exports | Imports | Gross Exports Minus Imports | Ceylon[2] | India & Burma[3] | Sarawak[4] | British North Borneo[3] | Siam[4] | Java & Madura | Sumatra E. Coast | Other D.E.I. | Indo-China[3] | Amazon Valley | All Other[4] | World Total[7] |
| 1923 | 252,016 | 70,432 | 181,584 | 39,971 | 6,416 | 5,705 | 4,237 | 1,718 | 32,930 | 46,344 | 57,822 | 5,067 | 16,765 | 7,856 | 406,955 |
| 1924 | 259,706 | 108,524 | 151,182 | 39,997 | 7,697 | 6,699 | 4,621 | 2,962 | 42,446 | 54,497 | 80,347 | 6,688 | 23,165 | 9,065 | 429,366 |
| 1925 | 316,825 | 158,022 | 158,803 | 49,566 | 10,082 | 5,424 | 5,377 | 5,377 | 46,757 | 65,499 | 120,626 | 7,881 | 25,298 | 13,797 | 517,528 |
| 1926 | 391,328 | 151,243 | 240,085 | 58,962 | 9,374 | 9,155 | 6,079 | 4,027 | 52,186 | 71,413 | 121,231 | 8,203 | 24,298 | 16,017 | 621,550 |
| 1927 | 371,322 | 182,845 | 188,477 | 55,356 | 11,321 | 10,923 | 6,582 | 5,472 | 55,297 | 77,815 | 142,171 | 8,645 | 28,782 | 15,633 | 606,474 |
| 1928 | 409,430 | 149,787 | 259,643 | 57,267 | 10,790 | 10,087 | 6,698 | 4,813 | 58,848 | 82,511 | 121,770 | 9,548 | 21,129 | 10,690 | 653,794 |
| 1929 | 574,836 | 163,092 | 411,744 | 81,584 | 11,663 | 11,077 | 7,381 | 5,018 | 65,990 | 87,789 | 134,037 | 9,696 | 21,148 | 6,767 | 853,894 |
| 1930 | 547,043 | 133,876 | 413,167 | 76,970 | 10,782 | 10,309 | 6,781 | 4,251 | 69,755 | 79,396 | 115,254 | 7,665 | 14,260 | 5,651 | 814,241 |
| 1929: | | | | | | | | | | | | | | | |
| Sept. | 53,484 | 12,392 | 41,092 | 7,993 | 884 | 832 | 640 | 405 | 4,708 | 7,517 | 10,149 | 655 | 1,566 | 504 | 76,446 |
| Oct. | 47,937 | 12,516 | 35,421 | 8,381 | 812 | 1,047 | 671 | 485 | 4,697 | 8,295 | 10,512 | 893 | 1,606 | 445 | 73,265 |
| Nov. | 46,279 | 11,204 | 35,075 | 6,660 | 1,065 | 668 | 672 | 278 | 4,760 | 6,711 | 9,380 | 771 | 1,442 | 535 | 68,017 |
| Dec. | 46,147 | 15,018 | 31,129 | 8,683 | 900 | 930 | 672 | 320 | 5,189 | 8,279 | 11,102 | 966 | 1,674 | 443 | 70,287 |
| 1930: | | | | | | | | | | | | | | | |
| Jan. | 52,535 | 11,773 | 40,762 | 7,741 | 1,560 | 791 | 642 | 386 | 5,709 | 7,831 | 8,928 | 856 | 1,837 | 585 | 77,628 |
| Feb. | 48,947 | 12,960 | 35,987 | 8,055 | 1,245 | 847 | 642 | 469 | 6,900 | 7,191 | 11,414 | 944 | 1,787 | 480 | 75,961 |
| Mar. | 47,320 | 12,236 | 34,084 | 6,617 | 1,129 | 976 | 642 | 391 | 5,796 | 6,612 | 11,214 | 643 | 1,674 | 536 | 70,314 |
| Apr. | 43,803 | 14,627 | 29,176 | 4,444 | 856 | 1,026 | 502 | 366 | 4,802 | 6,326 | 12,724 | 433 | 1,201 | 630 | 62,486 |
| May | 49,016 | 13,253 | 35,763 | 5,968 | 975 | 917 | 502 | 350 | 6,352 | 6,661 | 12,041 | 753 | 1,383 | 555 | 72,220 |
| June | 36,607 | 12,120 | 24,487 | 4,577 | 778 | 1,040 | 201 | 392 | 4,728 | 4,776 | 9,512 | 425 | 974 | 551 | 52,441 |
| July | 41,347 | 12,759 | 28,588 | 3,868 | 792 | 1,087 | 600 | 327 | 6,022 | 5,891 | 9,770 | 648 | 810 | 418 | 58,821 |
| Aug. | 47,802 | 10,304 | 37,498 | 7,077 | 600 | 740 | 600 | 335 | 5,892 | 7,197 | 9,520 | 394 | 809 | 382 | 71,134 |
| Sept. | 48,529 | 8,087 | 40,442 | 7,966 | 343 | 680 | 600 | 289 | 5,960 | 6,858 | 7,302 | 527 | 1,093 | 474 | 72,034 |
| Oct. | 47,770 | 7,312 | 40,458 | 7,681 | 591 | 598 | 650 | 300 | 5,916 | 6,956 | 6,352 | 667 | 669 | 449 | 71,287 |
| Nov. | 41,281 | 7,774 | 33,507 | 6,042 | 864 | 631 | 600* | 311 | 5,334 | 6,401 | 8,001 | 654 | 658 | 238 | 63,241 |
| Dec. | 42,086 | 9,671 | 32,415 | 6,934 | 1,049 | 976 | 600* | 335 | 6,254 | 7,196 | 8,476 | 721 | 1,365 | 353 | 66,674 |
| 1931: | | | | | | | | | | | | | | | |
| Jan. | 41,579 | 11,029 | 30,550 | 7,039 | 1,315 | 770 | 542 | 424 | 5,923 | 7,348 | 10,328 | 1,218 | 994 | 295 | 66,746 |
| Feb. | 41,951 | 9,672 | 32,279 | 6,365 | 1,041 | 945 | 542 | 409 | 4,869 | 7,206 | 9,001 | 1,018 | 1,271 | 217 | 65,163 |
| Mar. | 48,589 | 12,009 | 36,580 | 5,881 | 1,209 | 930 | 542 | 536 | 5,434 | 7,104 | 11,258 | 1,233 | 1,388 | 430 | 72,477 |
| Apr. | 43,353 | 9,977 | 33,376 | 4,333 | 641 | 788 | 455 | 340 | 6,473 | 6,063 | 8,759 | 327 | 629 | 333 | 62,517 |
| May | 44,281 | 10,479 | 33,802 | 4,534 | 622 | 869 | 455 | 413 | 7,372 | 6,799 | 10,955 | 702 | 1,110 | 382 | 68,015 |
| June | 39,505 | 12,115 | 27,390 | 5,246 | 1,086 | 1,138 | 455 | 337 | 5,856 | 6,697 | 11,381 | 938 | 621 | 351 | 61,496 |
| July | 43,658 | 11,995 | 31,663 | 4,212 | 715 | 801 | 500* | 316 | 6,671 | 7,510 | 10,711 | 841 | 1,565 | 186 | 65,691 |
| Aug. | 42,832 | 9,063 | 33,769 | 3,764 | 406 | 692 | 500* | 210 | 6,397 | 7,044 | 8,641 | 988 | 856 | 241 | 63,503 |
| Sept. | 44,336 | 8,369 | 35,967 | 4,202 | | 701 | 500* | 218 | 5,667 | 7,476 | 8,524 | 922 | 745 | 170 | |

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927, 1,437 in 1928, 2,670 in 1929, and 1,274 in 1930. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, 20 tons 1926, about ½ ton in 1927, and 1 ton in 1928, and practically none in 1929, 1930 and 1931. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, 1,459 tons in 1928, 1,302 tons in 1929, and 2,656 tons in 1930. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands, and includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown when available.

# Net Imports of Crude Rubber into Principal Manufacturing Countries

(*Long Tons*)

| | United States[1] | United Kingdom | France (h) | Germany | Canada (ac) | Japan (da) | Italy | Russia (ce) | Australia (cd) | Belgium (d) | Netherlands | Scandinavia (abcdf) | Spain (g) | Czechoslovakia (abcd) | World Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1919 | 238,407 | 42,671 | 17,685 | 5,584 | 6,895 | 9,753 | 9,894 | 75 | 1,002 | 3,995 | 2,771 | 8,149 | 2,418 | 9 | 343,803 |
| 1920 | 249,530 | 56,844 | 13,885 | 11,890 | 11,746 | 5,297 | 6,123 | 62 | 1,815 | 3,840 | 5,510 | 2,292 | 2,008 | 567 | 371,399 |
| 1921 | 179,736 | 42,087 | 15,135 | 21,920 | 8,124 | 21,713 | 3,906 | 165 | 1,014 | 1,705 | 1,022 | 1,279 | 2,245 | 569 | 300,620 |
| 1922 | 296,594 | 11,724 | 24,352 | 27,546 | 9,207 | 15,934 | 6,430 | 2,493 | 2,643 | 172 | —3,807 | 1,778 | 589 | 567 | 396,013 |
| 1923 | 301,527 | 12,700 | 27,892 | 18,519 | 13,277 | 15,372 | 8,489 | 2,988 | 1,649 | 2,184 | 792 | 2,528 | 630 | 1,128 | 409,173 |
| 1924 | 319,103 | —11,550 | 30,446 | 22,727 | 14,299 | 19,571 | 8,764 | 2,346 | 3,124 | 2,688 | —807 | 3,178 | 944 | 1,370 | 416,203 |
| 1925 | 385,596 | 4,061 | 32,956 | 33,937 | 19,683 | 11,117 | 11,412 | 7,088 | 4,757 | 2,930 | 875 | 3,149 | 1,155 | 1,558 | 520,274 |
| 1926 | 399,981 | 84,865 | 34,240 | 22,775 | 20,229 | 18,125 | 9,809 | 6,529 | 9,021 | 2,498 | 2,670 | 4,046 | 1,299 | 1,870 | 617,957 |
| 1927 | 403,472 | 60,249 | 34,271 | 38,892 | 26,405 | 20,521 | 11,381 | 12,018 | 9,490 | 6,482 | 636 | 4,224 | 2,055 | 2,672 | 632,808 |
| 1928 | 407,572 | 4,846 | 36,498 | 37,855 | 30,447 | 25,621 | 12,483 | 15,134 | 8,480 | 7,958 | 2,243 | 4,418 | 3,178 | 3,138 | 599,771 |
| 1929 | 528,608 | 122,675 | 55,093 | 49,275 | 35,453 | 34,284 | 17,169 | 11,774 | 15,886 | 9,445 | 3,022 | 6,440 | 864 | 4,650 | 894,015 |
| 1930 | 458,036 | 119,437 | 68,503 | 45,488 | 28,793 | 33,039 | 18,639 | 16,387 | 5,354 | 10,635 | 2,924 | 7,710 | 2,400 | 4,468 | 821,813 |
| 1929: | | | | | | | | | | | | | | | |
| Sept. | 32,912 | 17,010 | 3,889 | 4,691 | 1,908 | 3,511 | 1,224 | 1,235 | 853 | 672 | 253 | 361 | 91 | 477 | 68,453 |
| Oct. | 36,040 | 16,111 | 4,489 | 3,355 | 1,821 | 3,902 | 1,838 | 1,073 | 1,125 | 1,147 | 278 | 710 | 91 | 201 | 72,181 |
| Nov. | 41,097 | 13,141 | 3,082 | 3,776 | 2,709 | 3,221 | 1,275 | 1,226 | 1,453 | 361 | 253 | 595 | 62 | 313 | 72,564 |
| Dec. | 40,588 | 12,434 | 4,274 | 2,921 | 2,114 | 2,251 | 1,198 | 1,200 | 726 | 741 | 52 | 677 | 90 | 443 | 69,709 |
| 1930: | | | | | | | | | | | | | | | |
| Jan. | 44,911 | 11,106 | 4,207 | 3,862 | 2,842 | 2,805 | 910 | 826 | 332 | 612 | 209 | 552 | 200* | 577 | 73,949 |
| Feb. | 40,792 | 10,293 | 4,482 | 3,697 | 2,250 | 1,386 | 1,385 | 2,705 | 457 | 1,143 | 188 | 315 | 200* | 289 | 69,533 |
| Mar. | 42,216 | 12,346 | 4,354 | 4,289 | 3,776 | 2,663 | 1,083 | 1,153 | 975 | 678 | 358 | 322 | 200* | 263 | 74,676 |
| Apr. | 43,036 | 13,058 | 5,006 | 4,488 | 2,303 | 2,769 | 2,067 | 929 | 673 | 1,421 | 158 | 461 | 200* | 255 | 76,790 |
| May | 40,012 | 9,861 | 5,233 | 4,379 | 2,593 | 2,699 | 1,279 | 1,645 | 64 | 1,250 | 230 | 274 | 200* | 282 | 65,620 |
| June | 37,374 | 9,645 | 4,458 | 3,794 | 2,579 | 2,677 | 1,378 | 1,574 | 67 | 691 | 343 | 507 | 200* | 282 | 65,620 |
| July | 32,785 | 7,650 | 3,311 | 3,449 | 3,347 | 1,206 | 587 | 567 | 84 | 939 | 172 | 756 | 200* | 342 | 55,395 |
| Aug. | 34,513 | 8,369 | 3,953 | 3,515 | 2,108 | 2,170 | 886 | 149 | 265 | 888 | 37 | 747 | 200* | 450 | 58,250 |
| Sept. | 34,373 | 16,015 | 5,285 | 4,089 | 1,578 | 2,606 | 1,279 | 1,373 | 414 | 824 | 221 | 817 | 200* | 411 | 69,481 |
| Oct. | 44,385 | 9,095 | 7,403 | 3,747 | 1,942 | 3,951 | 2,460 | 2,782 | 609 | 769 | 439 | 1,132 | 200* | 351 | 79,264 |
| Nov. | 28,437 | —250 | 13,662 | 3,074 | 2,128 | 4,003 | 2,510 | 2,140 | 464 | 596 | 364 | 1,180 | 200* | 343 | 58,851 |
| Dec. | 35,202 | 12,249 | 7,149 | 3,105 | 1,347 | 4,104 | 2,815 | 544 | 950 | 814 | 205 | 647 | 200* | 673 | 70,004 |
| 1931: | | | | | | | | | | | | | | | |
| Jan. | 34,892 | 9,730 | 5,954 | 3,847 | 1,709 | 2,861 | 1,036 | 1,775 | 601 | 986 | 348 | 464 | 240 | 635 | 65,015 |
| Feb. | 32,575 | 12,226 | 4,510 | 3,374 | 1,927 | 3,264 | 1,393 | 1,022 | 495 | 785 | 157 | 475 | 201 | 366 | 62,770 |
| Mar. | 37,988 | 12,335 | 4,386 | 3,545 | 3,012 | 2,323 | 418 | 2,372 | 435 | 862 | 346 | 400 | 392 | 507 | 69,321 |
| Apr. | 43,036 | 9,440 | 4,346 | 3,054 | 2,070 | 3,478 | 528 | 1,450 | 457 | 515 | 333 | 495 | 208 | 324 | 69,734 |
| May | 33,343 | 7,212 | 2,880 | 3,231 | 2,748 | 3,755 | 1,023 | 1,034 | 884 | 1,153 | 86 | 495 | 180 | 711 | 58,735 |
| June | 44,190 | 5,636 | 4,002 | 3,504 | 2,112 | 2,988 | 1,462 | 3,279 | 1,112 | 1,058 | 272 | 577 | 207 | 607 | 71,006 |
| July | 44,052 | 5,366 | 3,301 | 3,226 | 2,592 | 3,065 | 809 | 3,141 | 627 | 1,507 | 41 | 429 | 145 | 1,074 | 69,375 |
| Aug. | 36,709 | 5,030 | 3,393 | 2,889 | 2,304 | 3,780 | 812 | 3,137 | 283 | 965 | —57 | 321 | 160 | 413 | 60,129 |
| Sept. | 37,570 | 5,468 | 4,420 | | 1,535 | | | | 334 | | | | 99 | | |

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1]United States imports of guayule are included in this compilation. *Figure is provisional; final figure will be shown immediately it becomes available.

## Domestic Production of Miscellaneous Rubber Goods

| | Rubber Proofed Fabrics | Rubber Heels | Rubber Soles | Mechanical Goods Shipments |
|---|---|---|---|---|
| | Yards | Pairs | Pairs | Dollars |
| 1924 | 25,020,000 | 186,279,000 | (1) | $48,615,000 |
| 1925 | 23,988,000 | 206,970,000 | 16,211,620(2) | 64,877,000 |
| 1926 | 29,328,000 | 183,312,000 | 12,253,000 | 76,789,000 |
| 1927 | 37,872,000 | 201,014,000 | 27,160,000 | 68,625,000 |
| 1928 | 41,179,000 | 235,170,000 | 37,645,000 | 69,114,000 |
| 1929 | 50,731,000 | 232,126,000 | 34,499,000 | 74,770,000 |
| 1930 | 42,681,000 | 178,059,000 | 29,514,000 | 58,465,000 |
| 1930: | | | | |
| August | 3,458,000 | 13,735,000 | 1,473,000 | 4,552,000 |
| September | 5,046,000 | 14,322,000 | 2,193,000 | 4,083,000 |
| October | 5,209,000 | 16,460,000 | 3,056,000 | 4,186,000 |
| November | 2,822,000 | 11,083,000 | 1,426,000 | 3,400,000 |
| December | 1,909,000 | 13,101,000 | 3,021,000 | 3,338,000 |
| 1931: | | | | |
| January | 2,206,000 | 12,973,000 | 2,481,000 | 3,599,000 |
| February | 2,184,000 | 13,156,000 | 2,724,000 | 3,711,000 |
| March | 2,769,000 | 14,661,000 | 2,292,000 | 4,412,000 |
| April | 3,381,000 | 15,408,000 | 2,692,000 | 4,617,000 |
| May | 3,050,000 | 15,474,000 | 2,885,000 | 4,231,000 |
| June | 3,212,000 | 17,093,000 | 3,177,000 | 3,579,000 |
| July | 3,337,000 | 15,361,000 | 2,864,000 | 3,706,000 |

(1) Not available; (2) Last 9 months only.
Source: "Survey of Current of Business of the Department of Commerce."

## United States Imports of Guayule, Balata. Jelutong, Liquid Latex

*(All quantities in Long Tons)*

| | Guayule | | Balata | | Jelutong | | Liquid Latex (1) | |
|---|---|---|---|---|---|---|---|---|
| | Tons | Dollars | Tons | Dollars | Tons | Dollars | Tons | Dollars |
| 1919 | 1,430 | 760,690 | 727 | 937,038 | 8,332 | 2,213,964 | — | — |
| 1920 | 758 | 345,985 | 1,064 | 1,260,043 | 5,672 | 2,068,501 | — | — |
| 1921 | 58 | 26,945 | 814 | 1,077,859 | 1,745 | 351,893 | — | — |
| 1922 | 127 | 57,040 | 812 | 978,765 | 2,335 | 403,812 | — | — |
| 1923 | 1,155 | 542,227 | 700 | 898,524 | 4,565 | 853,308 | — | — |
| 1924 | 1,356 | 536,392 | 464 | 568,456 | 6,165 | 1,237,100 | 2,157 | 864,059 |
| 1925 | 3,781 | 1,803,448 | 517 | 574,750 | 6,749 | 1,642,531 | 3,853 | 3,537,810 |
| 1926 | 4,305 | 2,562,096 | 354 | 327,213 | 7,263 | 3,127,757 | 3,388 | 4,680,886 |
| 1927 | 5,018 | 2,674,957 | 582 | 447,246 | 7,785 | 2,448,657 | 1,116 | 876,077 |
| 1928 | 3,075 | 1,755,685 | 731 | 430,855 | 7,552 | 2,540,059 | 4,167 | 2,186,579 |
| 1929 | 1,231 | 545,175 | 728 | 566,964 | 8,203 | 2,458,136 | 3,728 | 1,787,997 |
| 1930 | 1,096 | 347,388 | 501 | 422,684 | 5,907 | 1,403,244 | 4,449 | 1,506,804 |
| 1930: | | | | | | | | |
| Oct. | 64 | 18,527 | 36 | 30,702 | 490 | 113,638 | 306 | 99,687 |
| Nov. | — | — | 73 | 61,650 | 389 | 84,219 | 332 | 65,265 |
| Dec. | — | — | 90 | 66,198 | 429 | 116,644 | 70 | 20,481 |
| 1931: | | | | | | | | |
| Jan. | — | — | 46 | 31,870 | 355 | 58,897 | 291 | 70,708 |
| Feb. | — | — | 17 | 13,801 | 511 | 114,100 | 369 | 89,470 |
| Mar. | — | — | 66 | 23,568 | 625 | 127,803 | 395 | 75,285 |
| Apr. | — | — | 219 | 69,284 | 676 | 140,309 | 372 | 73,867 |
| May | — | — | 120 | 44,025 | 205 | 36,086 | 318 | 82,202 |
| June | — | — | 245 | 79,786 | 681 | 123,616 | 706 | 129,496 |
| July | — | — | 67 | 20,777 | 331 | 64,493 | 583 | 104,868 |
| Aug. | — | — | 73 | 30,207 | 652 | 100,536 | 364 | 60,358 |
| Sept. | — | — | 126 | 35,174 | 407 | 65,232 | 439 | 72,443 |

(1) Latex import figures not available before 1924.

## Reclaimed Rubber in the United States

*(All Quantities in Long Tons)*

| | | Consumption | | | | | Consumption | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Production | Tons | % to Crude | | Stocks* | Year | Production | Tons | % to Crude | Stocks* |
| 1921 | 36,725 | 41,351 | 24.1 | | ..... | 1926 | 180,582 | 164,500 | 45.9 | 23,218 |
| 1922 | 57,884 | 54,458 | 19.3 | | ..... | 1927 | 189,144 | 178,471 | 47.6 | 24,980 |
| 1923 | 74,766 | 69,534 | 22.7 | | ..... | 1928 | 208,516 | 223,000 | 50.4 | 24,785 |
| 1924 | 80,079 | 76,072 | 22.4 | | ..... | 1929 | 218,954 | 226,588 | 48.4 | 27,464 |
| 1925 | 132,930 | 137,105 | 35.6 | | 15,203 | 1930 | 157,967 | 153,497 | 40.8 | 22,000 |
| 1929: | | | | | | | | | | |
| Jan. | 18,685 | 21,068 | 49.1 | | 24,394 | July | 18,387 | 20,236 | 48.7 | 19,679 |
| Feb. | 18,094 | 19,829 | 47.7 | | 23,305 | Aug. | 19,787 | 18,230 | 47.6 | 22,309 |
| Mar. | 19,984 | 20,867 | 46.7 | | 22,076 | Sept. | 18,660 | 17,071 | 49.2 | 24,984 |
| Apr. | 19,899 | 22,435 | 47.3 | | 20,680 | Oct. | 18,865 | 18,744 | 53.8 | 25,117 |
| May | 20,385 | 23,176 | 47.1 | | 19,479 | Nov. | 14,363 | 15,330 | 55.4 | 26,080 |
| June | 18,416 | 18,141 | 42.0 | | 17,980 | Dec. | 13,429 | 11,531 | 49.0 | 27,464 |
| 1930: | | | | | | | | | | |
| Jan. | 15,010 | 17,454 | 47.6 | | 24,241 | July | 12,322 | 12,384 | 42.3 | 23,873 |
| Feb. | 15,846 | 14,559 | 44.5 | | 24,243 | Aug. | 12,047 | 10,985 | 35.9 | 22,980 |
| Mar. | 17,400 | 15,241 | 42.2 | | 24,415 | Sept. | 11,433 | 10,480 | 41.4 | 21,996 |
| Apr. | 17,828 | 16,904 | 42.0 | | 24,587 | Oct. | 12,349 | 10,724 | 39.3 | 21,145 |
| May | 17,812 | 17,052 | 42.7 | | 23,356 | Nov. | 10,763 | 8,816 | 37.5 | 24,007 |
| June | 15,714 | 14,063 | 40.8 | | 24,449 | Dec. | 10,073 | 8,449 | 39.3 | 24,008 |
| 1931: | | | | | | | | | | |
| Jan. | 10,349 | 10,728 | 37.6 | | 22,429 | July | 11,393 | 11,447 | 35.8 | 17,720 |
| Feb. | 10,871 | 10,800 | 37.5 | | 18,878 | Aug. | 10,110 | 9,972 | 36.2 | 17,165 |
| Mar. | 12,938 | 12,524 | 38.3 | | 18,375 | Sept. | 9,629 | 8,932 | 37.6 | 17,226 |
| Apr. | 13,267 | 11,745 | 35.0 | | 18,356 | Oct. | ..... | ..... | ..... | ..... |
| May | 13,478 | 13,103 | 34.6 | | 18,088 | Nov. | ..... | ..... | ..... | ..... |
| June | 14,066 | 13,045 | 34.4 | | 18,505 | Dec. | ..... | ..... | ..... | ..... |

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 8,540 tons in 1927, 9,577 tons in 1928, and 12,369 tons in 1929.
(Rubber Manufacturers' Association figures raised to 100%)

# REVIEW DESK

*Books. New Publications. Catalogues. Etc.*

CHEMICAL ENGINEERING CATALOG. Sixteenth Edition. Published by the Chemical Catalog Company, 419 Fourth Avenue, New York City. 1931. 1017 pp. $10.

There has been considerable development in the amount of detailed information presented in the pages of this standard reference work, although the actual number of manufacturers represented shows a slight decrease. The current volume contains, as usual, collected, condensed and standardized catalog data of equipment, machinery, laboratory supplies, heavy and fine chemicals and raw materials, with classified indices, carefully cross-referenced, and a technical and scientific book section, cataloging and briefly describing an extensive list of books in English on chemical and related subjects. It is as much as ever essential for chemical engineers, works managers, purchasing agents and others who buy and specify equipment and materials in chemical process industries.

METHODS OF TEST RELATING TO ELECTRICAL INSULATING MATERIALS. Published by the American Society for Testing Materials, 1315 Spruce Street, Philadelphia, Pa. 1931. 216 pp. $1.25.

In addition to the current report of Committee D-9 of the A. S. T. M., this annual volume contains the methods of testing insulating materials that have been developed by the society. Three standard methods and ten tentative methods of test are given. The volume also includes ten specifications covering certain rubber and textile products which should be of interest. The specifications included cover friction tape, rubber insulating tape, rubber gloves, rubber matting and other materials.

ROYLE PERFECTED TUBING MACHINE NO. ½. Published by John Royle & Sons, Straight and Essex Streets, Paterson, N. J. 1931. 4 pp. For free distribution.

The smallest tubing machine in the company's line is described and illustrated in this bulletin. Having a diameter of 1⅛ inches, it is particularly adapted to the production of small items such as fountain pen barrels, small tubing, covering of small wire and to laboratory use. Specifications of the machine are given, as are details of its construction and operation.

ANNUAL REPORT, 1930. Published by the Rubber Research Institute of Malaya, Kuala Lumpur, F. M. S. 1931. 134 pp. $1 (Malaya.)

Considerable progress was made by the Rubber Research Institute of Malaya in the fifth year of its existence, despite the continued difficulty of a shortage of staff. In addition to the annual reports of the board and the director, there are presented the individual reports of the Bacteriologist and the heads of the Experiment Station and of the Soils, Botanical, Pathological, Chemical and Field Divisions.

ALUMINUM IN TEXTILE INDUSTRIES. Published by the British Aluminum Company, Ltd., Adelaide House, London E. C. 4, England. 1931. 20 pp. For free distribution.

In the textile industries aluminum has attained a place of importance by reason of its combination of several economic qualities, particularly its lightness and resistance to rust and to attack by various reagents employed in textile processes. In a high speed single tier braiding machine for covering rubber hose, for example, the 36 cheeses of yarn are carried on aluminum bobbins. This and many other applications are illustrated and described in this pictorial booklet.

PREVENTING TAXICAB ACCIDENTS Published by the Policyholders Service Bureau, Metropolitan Life Insurance Company, 1 Madison Avenue, New York City. 1931. 34 pp. For free distribution.

In co-operation with the National Association of Taxicab Owners, the Policyholders Service Bureau of the Metropolitan Life Insurance Company this year completed a survey of the accident prevention methods being used successfully in the taxicab industry. The report describes methods of conducting safety activities, analyzes and charts accident data, presents interesting case studies of accident repeaters and describes an accident statistical plan. Space does not permit details as to the inspection of tires and other equipment, but a recommendation of the cab owners' group urges regular inspections and the use of safe equipment.

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# The RUBBER AGE

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